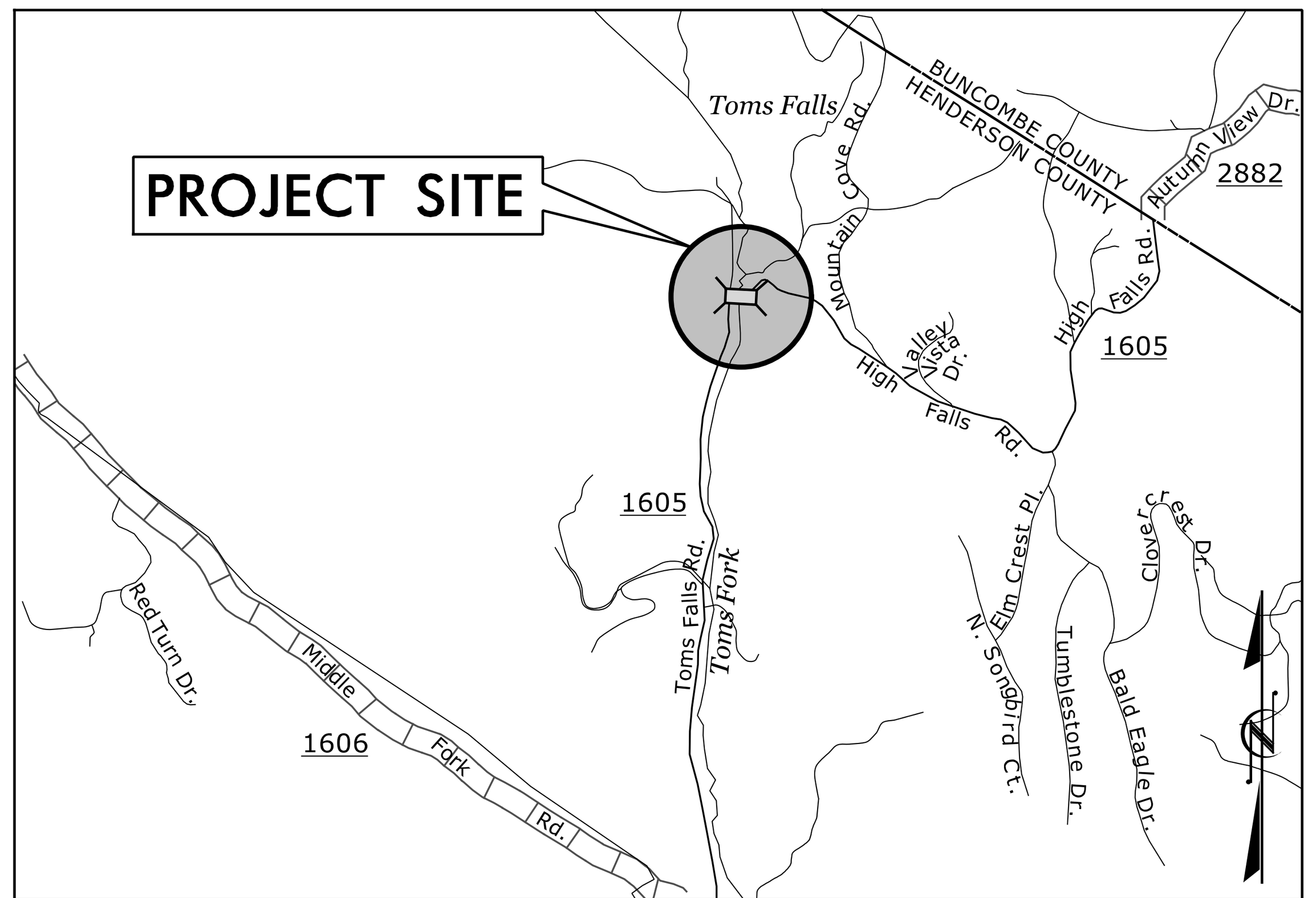
This electronic collection of documents is provided for the convenience of the user and is Not a Certified Document –

The documents contained herein were originally issued and sealed by the individuals whose names and license numbers appear on each page, on the dates appearing with their signature on that page.
This file or an individual page shall not be considered a certified document.

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP

N.T.S.

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

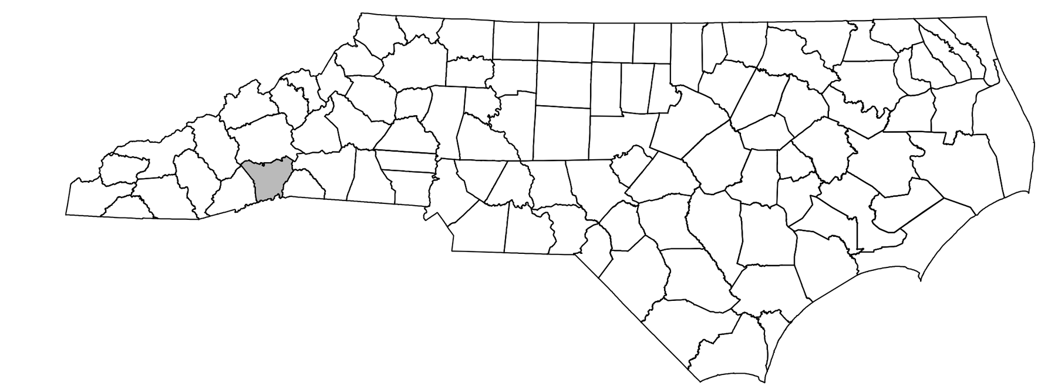
HENDERSON COUNTY

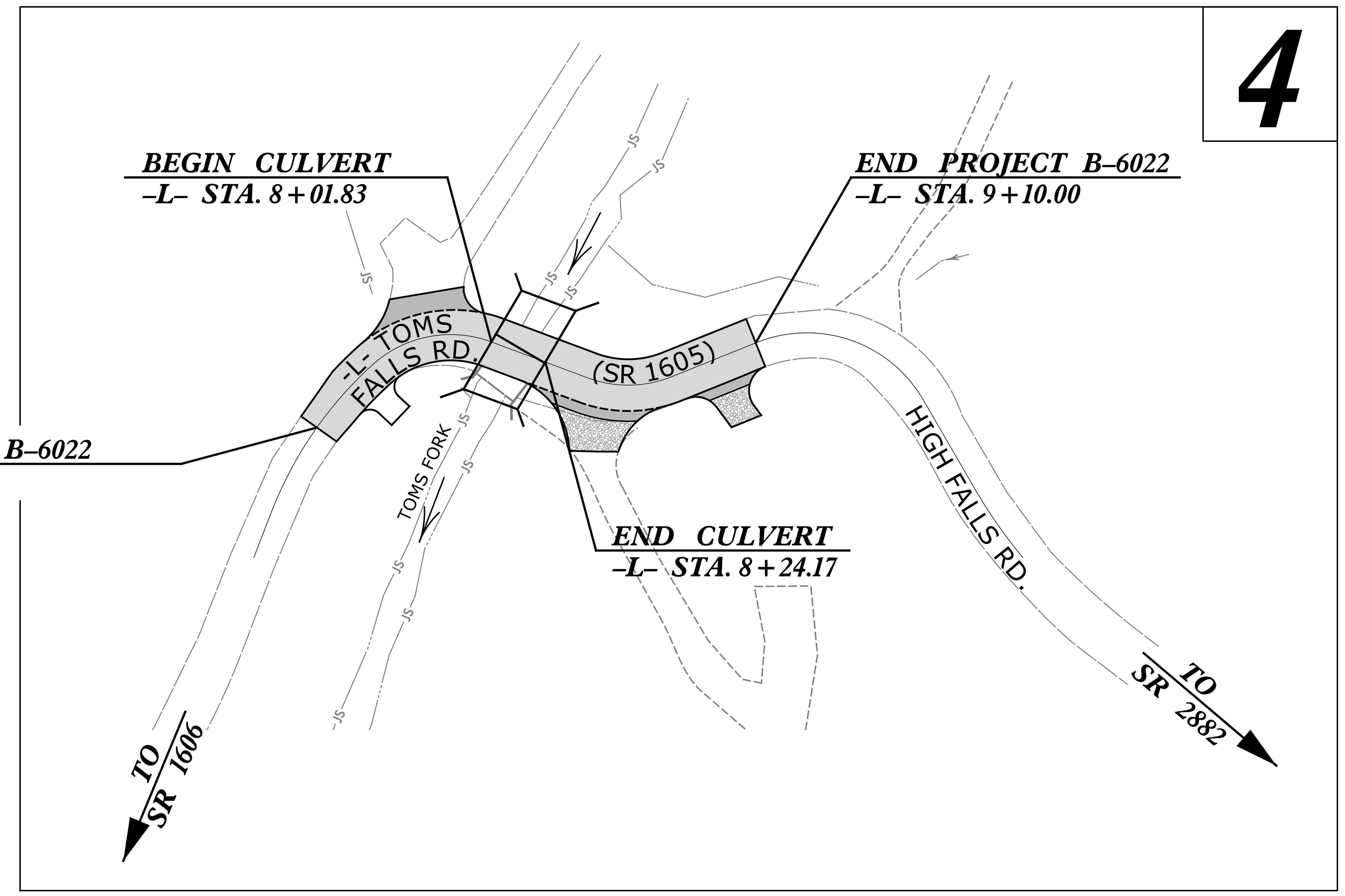
LOCATION: BRIDGE #440215 OVER TOMS FORK ON SR 1605 (TOMS FALLS ROAD)

TYPE OF WORK: PAVING, GRADING, DRAINAGE & CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–6022	1	

HENDERSON COUNTY	CULVERT #440215	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
17BP.14.R.102	–	PE
17BP.14.R.102	–	RW & UTILITIES
48217.3.1	BRZ-1605(009)	CONST





NCDOT CONTACT:
HIGHWAY DIVISION 14 BRIDGE MANAGER
ADAM DOCKERY, P.E.
(828) 488-0902

THERE IS NO CONTROL ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

PROJECT: B-6022

CONTRACT: DN00271

GRAPHIC SCALES
20 10 0 20 40 PLANS
20 10 0 20 40 PROFILE (HORIZONTAL)
4 2 0 4 8 PROFILE (VERTICAL)

DESIGN DATA
ADT (2000) = 270
DHV = NA
D = NA
T = 6%
V = 15 MPH
* TTST = NA DUAL NA
FUNC CLASS = LOCAL (SUBREGIONAL)

PROJECT LENGTH
LENGTH ROADWAY PROJECT B-6022	=	0.032 MILES
LENGTH CULVERT PROJECT B-6022	=	0.004 MILES
TOTAL LENGTH PROJECT B-6022	=	0.036 MILES

Plans Prepared By:
AMERICAN Engineering
AMERICAN ENGINEERING ASSOCIATES - SOUTHEAST, PA
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NORTH CAROLINA 28226
PHONE: 704-375-2438
NC Lic. No. C-3881

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: NOVEMBER 4, 2015

LETTING DATE: FEBRUARY 26, 2019

ALLISON C. JOHNSON, P.E.
PROJECT ENGINEER

BENJAMIN C. PICKERING II, P.E.
PROJECT DESIGN ENGINEER

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 40801 ENGINEER PAUL H. CAMERON
DocuSigned by: Paul Cameron 1/18/2019
SIGNATURE: P.E.

ROADWAY DESIGN ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041650 ENGINEER BENJAMIN C. PICKERING
DocuSigned by: 1/18/2019
SIGNATURE: P.E.

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

09/08/99
1/15/2019
Dw: \\gfpwing02.corporate.gannettfleming.com:GFPW02\Documents\Projects\57719\440215\Roadway\Proj\B440215_Rdy_tsh.dgn
Deb Wright

8/17/99

PROJECT REFERENCE NO.	SHEET NO.
B-6022	1A

HENDERSON COUNTY CULVERT #440215

ROADWAY DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 041650 ENGINEER BENJAMIN G. PICKERING II

1/18/2019

Plans Prepared By:

AMERICAN Engineering
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NORTH CAROLINA 28226
NC Lic. No. C-3881

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

INDEX OF SHEETS

GENERAL NOTES

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018

GRADE LINE:
GRADING AND SURFACING:

THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:

CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:

ALL CURVES ON THIS PROJECT SHALL BE SUPERELEVATED IN ACCORDANCE WITH STD. NO. 225.04 USING THE RATE OF SUPERELEVATION AND RUNOFF SHOWN ON THE PLANS. SUPERELEVATION IS TO BE REVOLVED ABOUT THE GRADE POINTS SHOWN ON THE TYPICAL SECTIONS.

SHOULDER CONSTRUCTION:

ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01

DRIVEWAYS:

DRIVEWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. 848.02 AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED BY THE ENGINEER.

GUARDRAIL:

THE GUARDRAIL LOCATIONS SHOWN ON THE PLANS MAY BE ADJUSTED DURING CONSTRUCTION AS DIRECTED BY THE ENGINEER. THE CONTRACTOR SHOULD CONSULT WITH THE ENGINEER PRIOR TO ORDERING GUARDRAIL MATERIAL.

TEMPORARY SHORING:

SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

UTILITIES:

UTILITY OWNERS ON THIS PROJECT ARE AT&T & DUKE ENERGY.
ANY RELOCATION OF EXISTING UTILITIES WILL BE ACCOMPLISHED BY OTHERS.
SEE UTILITY SPECIAL PROVISIONS.

RIGHT-OF-WAY MARKERS:

ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT IN ACCORDANCE WITH SECTION 801 OF THE 2018 NORTH CAROLINA STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES.

STANDARD DRAWINGS

EFF. 01-16-2018

2018 ROADWAY ENGLISH STANDARD DRAWINGS

The following Roadway Standards as appear in "Roadway Standard Drawings" Highway Design Branch - N. C. Department of Transportation - Raleigh, N. C., Dated January, 2018 are applicable to this project and by reference hereby are considered a part of these plans:

STD.NO.	TITLE
	DIVISION 2 - EARTHWORK
200.02	Method of Clearing - Method II
225.02	Guide for Grading Subgrade - Secondary and Local
225.04	Method of Obtaining Superelevation - Two Lane Pavement
	DIVISION 3 - PIPE CULVERTS
300.01	Method of Pipe Installation
	DIVISION 5 - SUBGRADE, BASES AND SHOULDERS
560.01	Method of Shoulder Construction - High Side of Superelevated Curve - Method I
	DIVISION 8 - INCIDENTALS
806.01	Concrete Right-Of-Way Marker
806.02	Granite Right-Of-Way Marker
848.02	Driveway Turnout - Radius Type
862.01	Guardrail Placement
862.02	Guardrail Installation
876.01	Rip Rap in Channels
876.02	Guide for Rip Rap at Pipe Outlets

pw:\\gfpwing02.corporate.gannettfleming.com:GFPW02\Documents\Projects\57719\440215\Roadway\Proj\B440215_Rdy_tsh_1A.dgn
1/9/2019
Rob Wright

12/05/11

Note: Not to Scale

****S.U.E. = Subsurface Utility Engineering***

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

PROJECT REFERENCE NO.	SHEET NO.
B–6022	1B

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 123
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB
- Known Soil Contamination: Area or Site
- Potential Soil Contamination: Area or Site

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign — S
- Well — W
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite R/W Marker — RW
- Proposed Control of Access Line with Concrete C/A Marker — CA
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Drainage / Utility Easement — DUE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Aerial Utility Easement — AUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Curb Ramp — CR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole
- H–Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- Underground Storage Tank, Approx. Loc. — UST
- A/G Tank; Water, Gas, Oil
- Geoenvironmental Boring
- U/G Test Hole (S.U.E.*)
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

SURVEY CONTROL SHEET 44-0215
-FINAL-

BL

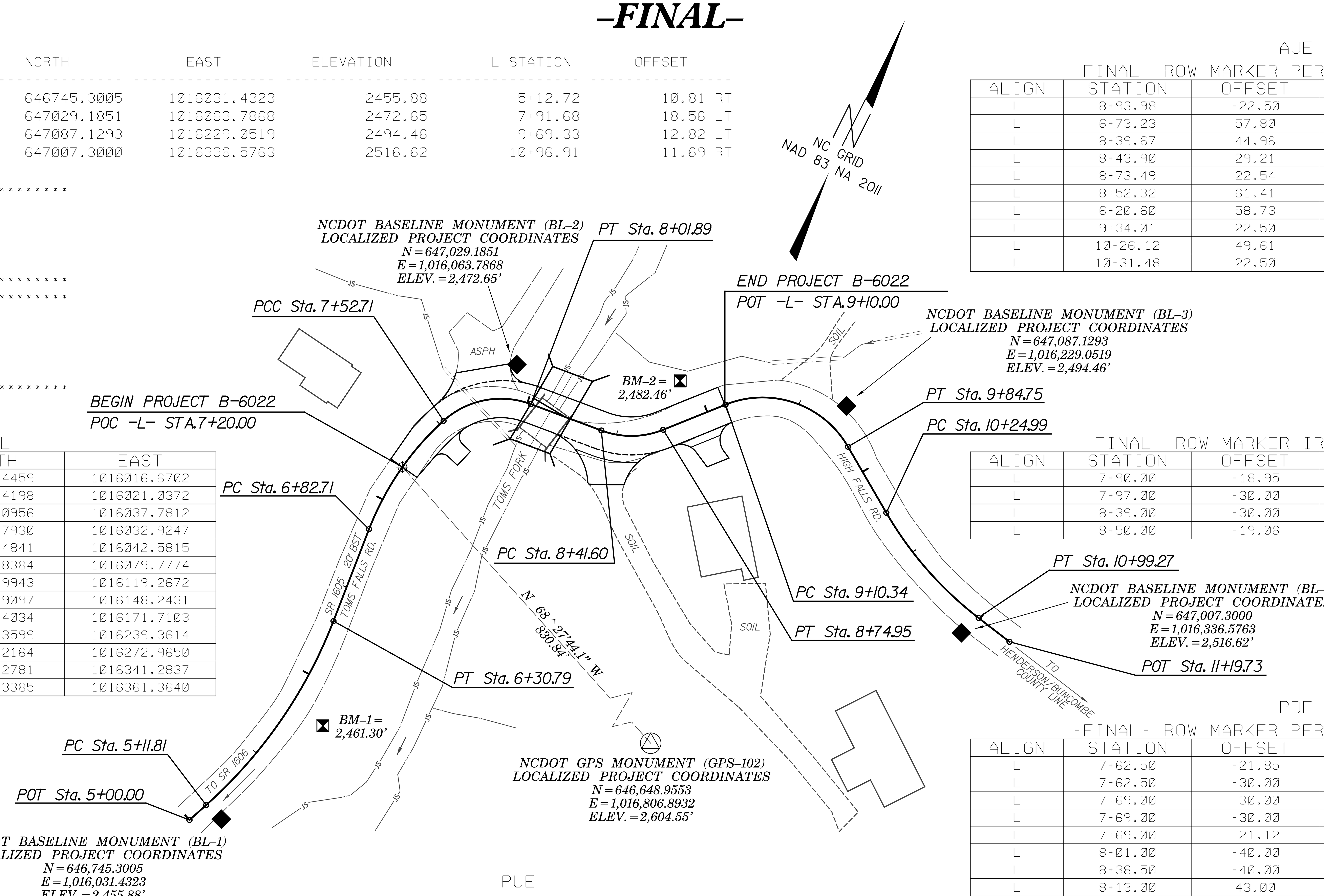
POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1	BL-1	646745.3005	1016031.4323	2455.88	5+12.72	10.81 RT
2	BL-2	647029.1851	1016063.7868	2472.65	7+91.68	18.56 LT
3	BL-3	647087.1293	1016229.0519	2494.46	9+69.33	12.82 LT
4	BL-4	647007.3000	1016336.5763	2516.62	10+96.91	11.69 RT

BM1 ELEVATION = 2461.30
N 646813.25 E 1016057.46
BL STATION 5+70.46 18.17' RIGHT
NAIL IN BASE OF UTILITY POLE

BM2 ELEVATION = 2482.46
N 647059.90 E 1016144.76
BL STATION 8+72.29 2.20' LEFT
NAIL IN BASE OF UTILITY POLE

FINAL -L-

TYPE	STATION	NORTH	EAST
POT	5+00.00	646737.4459	1016016.6702
PC	5+11.81	646748.4198	1016021.0372
PT	6+30.79	646865.0956	1016037.7812
PC	6+82.71	646916.7930	1016032.9247
PCC	7+52.71	646985.4841	1016042.5815
PT	8+01.89	647013.8384	1016079.7774
PC	8+41.60	647017.9943	1016119.2672
PT	8+74.95	647032.9097	1016148.2431
PC	9+10.34	647059.4034	1016171.7103
PT	9+84.75	647068.3599	1016239.3614
PC	10+24.99	647046.2164	1016272.9650
PT	10+99.27	647018.2781	1016341.2837
POT	11+19.73	647014.3385	1016361.3640



AUE

-FINAL- ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	8+93.98	-22.50	647062.07211	1016144.01676
L	6+73.23	57.80	646912.76184	1016091.35352
L	8+39.67	44.96	646973.07463	1016122.05481
L	8+43.90	29.21	646989.43468	1016126.09206
L	8+73.49	22.54	647016.35135	1016163.63441
L	8+52.32	61.41	646962.53876	1016150.35479
L	6+20.60	58.73	646858.05911	1016097.17106
L	9+34.01	22.50	647052.21543	1016199.41348
L	10+26.12	49.61	647004.00797	1016246.85798
L	10+31.48	22.50	647023.54200	1016266.70614

-FINAL- ROW MARKER IRON PIN AND CAP-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	7+90.00	-18.95	647028.7253	1016061.4145
L	7+97.00	-30.00	647042.3815	1016068.5903
L	8+39.00	-30.00	647047.5574	1016113.5411
L	8+50.00	-19.06	647037.9033	1016122.0120

PDE

-FINAL- ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	7+62.50	-21.85	647006.30747	1016028.96149
L	7+62.50	-30.00	647010.84644	1016022.18992
L	7+69.00	-30.00	647019.37881	1016028.84994
L	7+69.00	-30.00	647019.37881	1016028.84994
L	7+69.00	-21.12	647013.42644	1016035.43476
L	8+01.00	-40.00	647053.42511	1016073.91629
L	8+38.50	-40.00	647057.44958	1016111.99756
L	8+13.00	43.00	646972.23656	1016095.32452
L	7+50.00	22.02	646975.29849	1016062.26405

PUE

-FINAL- ROW MARKER PERMANENT EASEMENT-E

ALIGN	STATION	OFFSET	NORTH	EAST
L	8+93.98	-22.50	647062.07211	1016144.01676
L	9+12.61	-33.11	647084.07692	1016149.44701
L	7+72.00	-71.59	647052.86471	1016003.39955
L	7+77.02	-97.92	647082.20223	1015997.12975
L	9+26.97	-53.87	647116.46235	1016157.43893
L	9+45.00	-127.56	647201.59514	1016178.44760
L	9+53.44	-117.48	647194.40750	1016207.57384
L	9+39.59	-34.82	647108.28716	1016186.32147
L	9+44.34	-22.50	647098.06623	1016196.38063
L	6+18.07	22.50	646853.38673	1016061.12955
L	5+38.92	22.50	646768.07648	1016051.36681

DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCDOT FOR MONUMENT "440215 GPS-102"
WITH NAD 83/NA 2011 STATE PLANE GRID COORDINATES OF NORTHING: 646648.9553(ft) EASTING: 1016806.8932(ft)
ELEVATION: 2604.55(ft)
THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99976187
THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "440215 GPS-102" TO -L- STATION 7+20.00 IS N 68°27'44.1" W 830.84 (ft)
ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES
VERTICAL DATUM USED IS NAVD 88

GEOID MODEL - G12ANC
NOTE: DRAWING NOT TO SCALE

NOTES:

1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT: HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/

   THE FILES TO BE FOUND ARE AS FOLLOWS:
   440215_LS_CONTROL_TXT

   SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

△ INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.
PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.

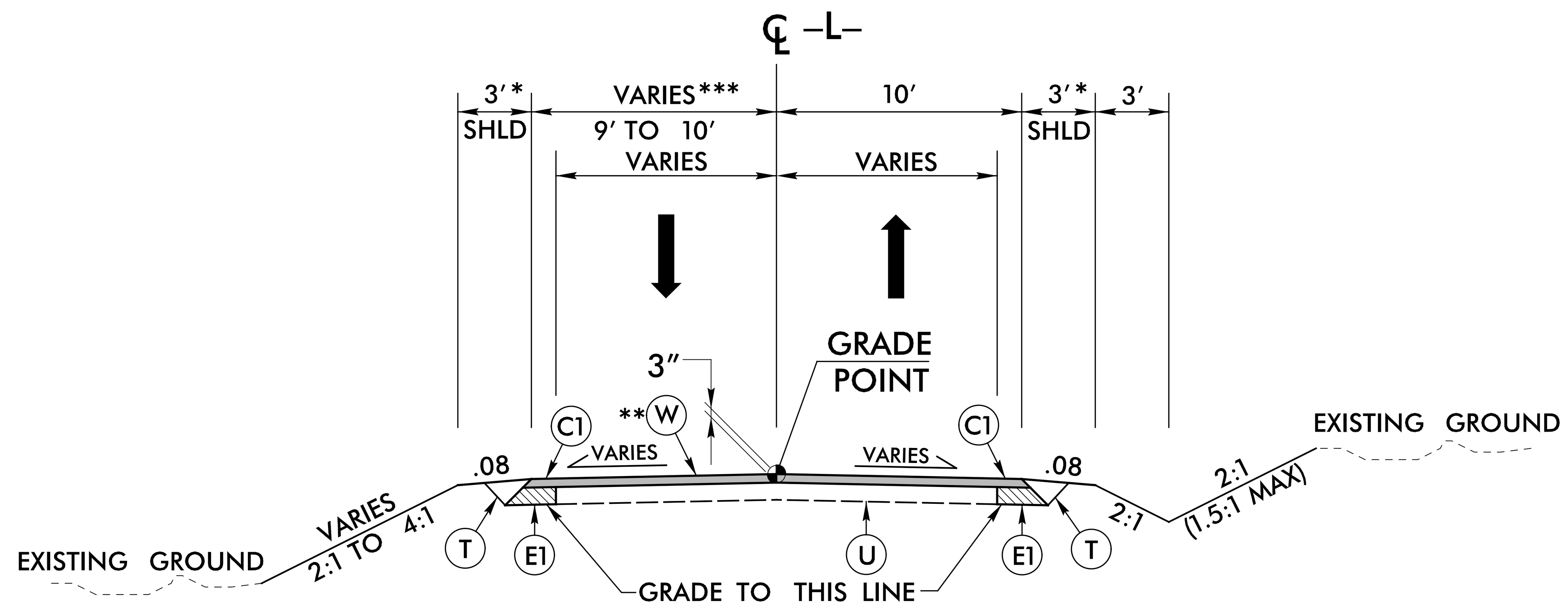
PROJECT REFERENCE NO.	SHEET NO.
B-6022	2A-1
HENDERSON COUNTY CULVERT #440215	
ROADWAY DESIGN ENGINEER	PAVEMENT DESIGN ENGINEER

NORTH CAROLINA PROFESSIONAL SEAL 041650 ENGINEER BENJAMIN G. PICKERING II
1/18/2019

Plans Prepared By:

AMERICAN Engineering
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NORTH CAROLINA 28226
NC Lic. No. C-3881

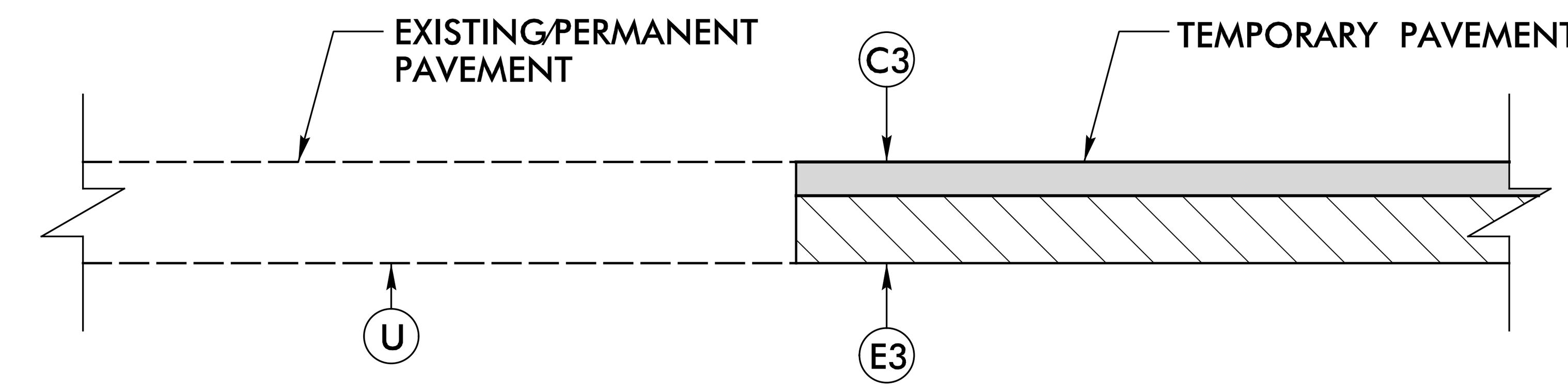
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



TYPICAL SECTION NO. 1

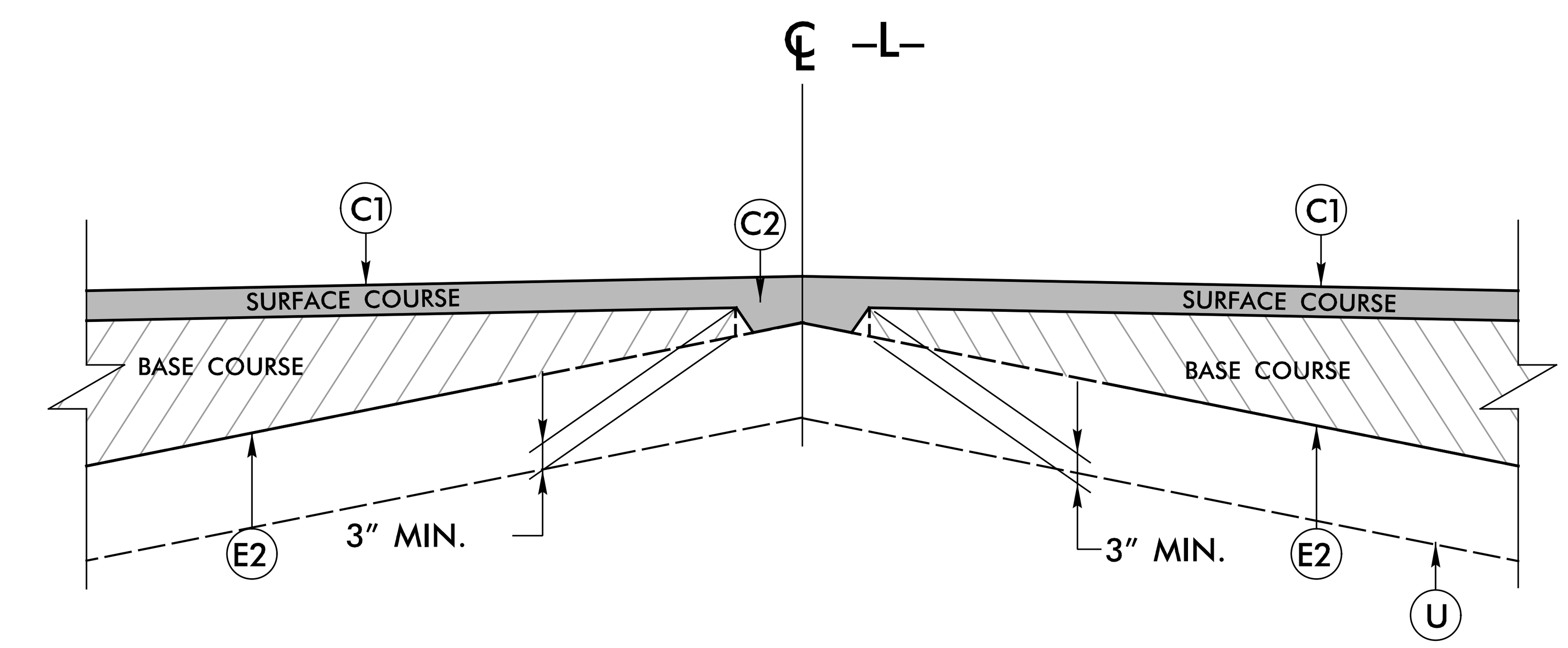
-L- STA. 7+20.00 TO STA. 7+90.00
-L- STA. 8+45.00 TO STA. 9+10.00
*** -L- STA. 7+20.00 LT TO STA. 8+01.89 LT

* 6′-0″ WITH GUARDRAIL



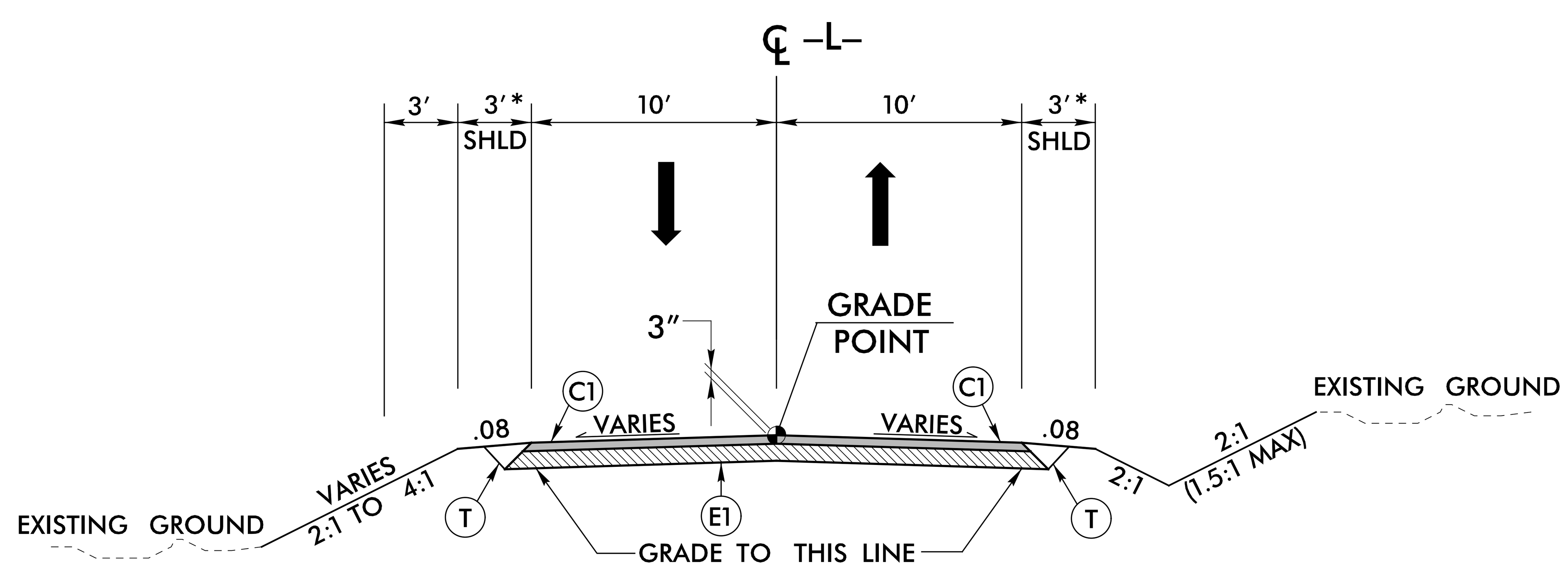
TEMPORARY PAVEMENT DETAIL

NOT TO SCALE
(SEE TRAFFIC CONTROL PLANS)



**DETAIL SHOWING METHOD OF WEDGING (W)

NOT TO SCALE



TYPICAL SECTION NO. 2

-L- STA. 7+90.00 TO STA. 8+45.00

NOTE: SEE PLAN FOR SUPER ELEVATION RATES AND TRANSITIONS
* 6′-0″ WITH GUARDRAIL

PAVEMENT SCHEDULE

ITEM	DESCRIPTION
C1	PROP. APPROX. 3″ ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD. IN EACH OF TWO EQUAL LAYERS
C2	PROP. VARIABLE DEPTH ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 110 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT TO EXCEED 1½″ IN DEPTH.
C3	PROP. APPROX. 1½″ ASPHALT CONCRETE BASE COURSE, TYPE S9.5B, AT AN AVERAGE RATE OF 165 LBS. PER SQ. YD.
E1	PROP. APPROX. 5½″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 627 LBS. PER SQ. YD.
E2	PROP. VARIABLE DEPTH ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 114 LBS. PER SQ. YD. PER 1″ DEPTH TO BE PLACED IN LAYERS NOT LESS THAN 3″ OR GREATER THAN 5.5″ IN DEPTH.
E3	PROP. APPROX. 3″ ASPHALT CONCRETE BASE COURSE, TYPE B25.0C, AT AN AVERAGE RATE OF 342 LBS. PER SQ. YD.
T	EARTH MATERIAL
U	EXISTING PAVEMENT
W	WEDGING - SEE DETAIL THIS SHEET

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

6/2/99
1/9/2019
Pw:\\gfpwing02.corporate.gannettfleming.com:GFPW02\Documents\Projects\57719\440215\Roadway\Proj\B440215_Rdy_typ_2A-1.dgn
Rob Wright

COMPUTED BY: BCP	DATE: 1/17/19
CHECKED BY: ACJ	DATE: 1/17/19

PROJECT REFERENCE NO.	SHEET NO.
B-6022	3B-1

HENDERSON COUNTY CULVERT #440215

Plans Prepared By:

AMERICAN Engineering
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NORTH CAROLINA 28226
NC Lic. No. C-3881

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

SUMMARY OF EARTHWORK
(in Cubic Yards)

STATION	STATION	UNCL. EXCAV.	EMBANK. +%	BORROW	WASTE
PHASE 1					
-L- STA. 7+20	-L- STA. 9+10	176	15	0	161
PHASE 2					
-L- STA. 7+20	-L- STA. 9+10	16	110	94	0
PROJECT TOTALS:		192	125	94	161
TRAFFIC MANAGEMENT EMBANKMENT				21	
LOSS DUE TO CLEARING AND GRUBBING		-6			-6
WASTE TO REPLACE BORROW				-115	-115
GRAND TOTALS:		186	125	0	40
SAY:		190		0	

EST UNDERCUT = 50 CY
EST SELECT GRANULAR MATERIAL = 50 CY

Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading".

PAVEMENT REMOVAL SUMMARY

SURVEY LINE	STATION	STATION	LOCATION LT/RT/CL	YD²
-L- Temp	7+89.00	9+10.00	LT	88.9
GRAND TOTALS:				88.9
SAY:				90

PARCEL INDEX SHEET

PARCEL NO.	SHEET NO.	PROPERTY OWNER NAMES
30	4,4A,5	DOWLING McWADE FAMILY TRUST
31	4,4A,5	T.B. HILL
32	4,4A,5	ERNEST W. OWENSBY, SR.

LIST OF PIPES, ENDWALLS, ETC. (FOR PIPES 48" & UNDER)

STATION / SIZE / THICKNESS OR GAUGE	LOCATION (LT,RT, OR CL)	STRUCTURE NO. FROM	STRUCTURE NO. TO	TOP ELEVATION	INVERT ELEVATION	INVERT ELEVATION	SLOPE CRITICAL	DRAINAGE PIPE (RCP, CSP, CAAP, HDPE, or PVC) 12"	15"	18"	24"	30"	36"	42"	48"
-L- 7+71	LT	0401			2470.7	2466.0									
TOTAL															

STATION / SIZE / THICKNESS OR GAUGE	C.S. PIPE (UNLESS NOTED OTHRWISE) 12" .064	15" .064	18" .064	24" .064	24"	30" .079	30"	36" .079	36"	42" .109	42"	48" .109	48"
-L- 7+71													
TOTAL													

STATION	CLASS IV R.C. PIPE (UNLESS OTHERWISE NOTED) 12"	15"	18"	24"	30"	36"	42"	48"	15" SIDE DRAIN PIPE	18" SIDE DRAIN PIPE	24" SIDE DRAIN PIPE	ENDWALLS STD. 838.01, STD. 838.11 OR STD. 838.80 (UNLESS NOTED OTHERWISE) CU. YDS. R.C.P.	C.S.P.
-L- 7+71			52										
TOTAL			52										

STATION	QUANTITIES FOR DRAINAGE STRUCTURES * TOTAL L.F. FOR PAY QUANTITY SHALL BE COL. 'A' + (1.3 X COL.'B') PER EACH (0' THRU 5.0')	LIN. *FT. A 5.0' THRU 10.0'	LIN. *FT. B 10.0' AND ABOVE	C.B. STD. 840.01 OR STD. 840.02	FRAME, GRATES AND HOOD STANDARD 840.03 TYPE OF GRATE E	F	G	
-L- 7+71								
TOTAL								

STATION	D.I. STD. 840.14 OR STD. 840.15	D.I. FRAME & GRATE STD. 840.16	G.D.I. TYPE "A" STD. 840.17 OR 840.26	G.D.I. TYPE "B" STD. 840.18 OR 840.27	G.D.I. TYPE "D" STD. 840.19 OR 840.28	G.D.I. FRAME WITH GRATE STD. 840.22	G.D.I. FRAME WITH TWO GRATES STD. 840.22	G.D.I. (N.S.) FRAME WITH GRATE STD. 840.24	G.D.I. (N.S.) FRAME WITH TWO GRATES STD. 840.24	J.B. STD. 840.31 OR 840.32								CORR. STEEL ELBOWS NO. & SIZE	CONC. COLLARS CL. "B" C.Y. STD 840.72	CONC. & BRICK PIPE PLUG, C.Y. STD. 840.71	PIPE REMOVAL LIN.FT.	REMARKS
-L- 7+71																					51	REPLACEMENT OF CROSS PIPE
TOTAL																						

ABBREVIATIONS

C.B. CATCH BASIN
N.D.I. NARROW DROP INLET
D.I. DROP INLET
G.D.I. GRATED DROP INLET
G.D.I. (N.S.) GRATED DROP INLET (NARROW SLOT)
J.B. JUNCTION BOX
M.H. MANHOLE
T.B.D.I. TRAFFIC BEARING DROP INLET
T.B.J.B. TRAFFIC BEARING JUNCTION BOX

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH STRAIGHT	LENGTH SHOP CURVED	LENGTH DOUBLE FACED	WARRANT POINT APPROACH END	WARRANT POINT TRAILING END	"N" DIST. FROM E.O.L.	TOTAL SHOUL. WIDTH	FLARE LENGTH APPROACH END	FLARE LENGTH TRAILING END	W APPROACH END	W TRAILING END
-L-	7+94	9+00	LT	81	25				3	6				
-L-	7+57	8+35	RT	37	41				3	6				
			SUBTOTALS	118	66									
			END UNIT DEDUCTION	-43.75										
			TOTAL	74.25	66									
			SAY	75	75									

SURVEY LINE	ANCHORS GREU TYPE-III	B-77	GREU TL-2	GREU TL-3	CAT-1	TYPE III	TYPE III SC	B-77 SC	AT-1	IMPACT ATTENUATOR TYPE 350 EA	G	NG	SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
-L-			1						1							GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
-L-									2							GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES

DEDUCTIONS FOR GUARDRAIL END UNITS		
TYPE AT-1	3 @ 6.25' =	18.75
GREU TYPE TL-2	1 @ 25.00' =	25
	TOTAL =	43.75

PROJECT REFERENCE NO.	SHEET NO.
B-6022	4

HENDERSON COUNTY CULVERT #440215

R/W SHEET NO.

ROADWAY DESIGN ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 041650 ENGINEER BENJAMIN J. PICKERING — 1/18/2019

HYDRAULICS ENGINEER — NORTH CAROLINA PROFESSIONAL SEAL 40801 ENGINEER PAUL CAMERON — 1/18/2019

Plans Prepared By:

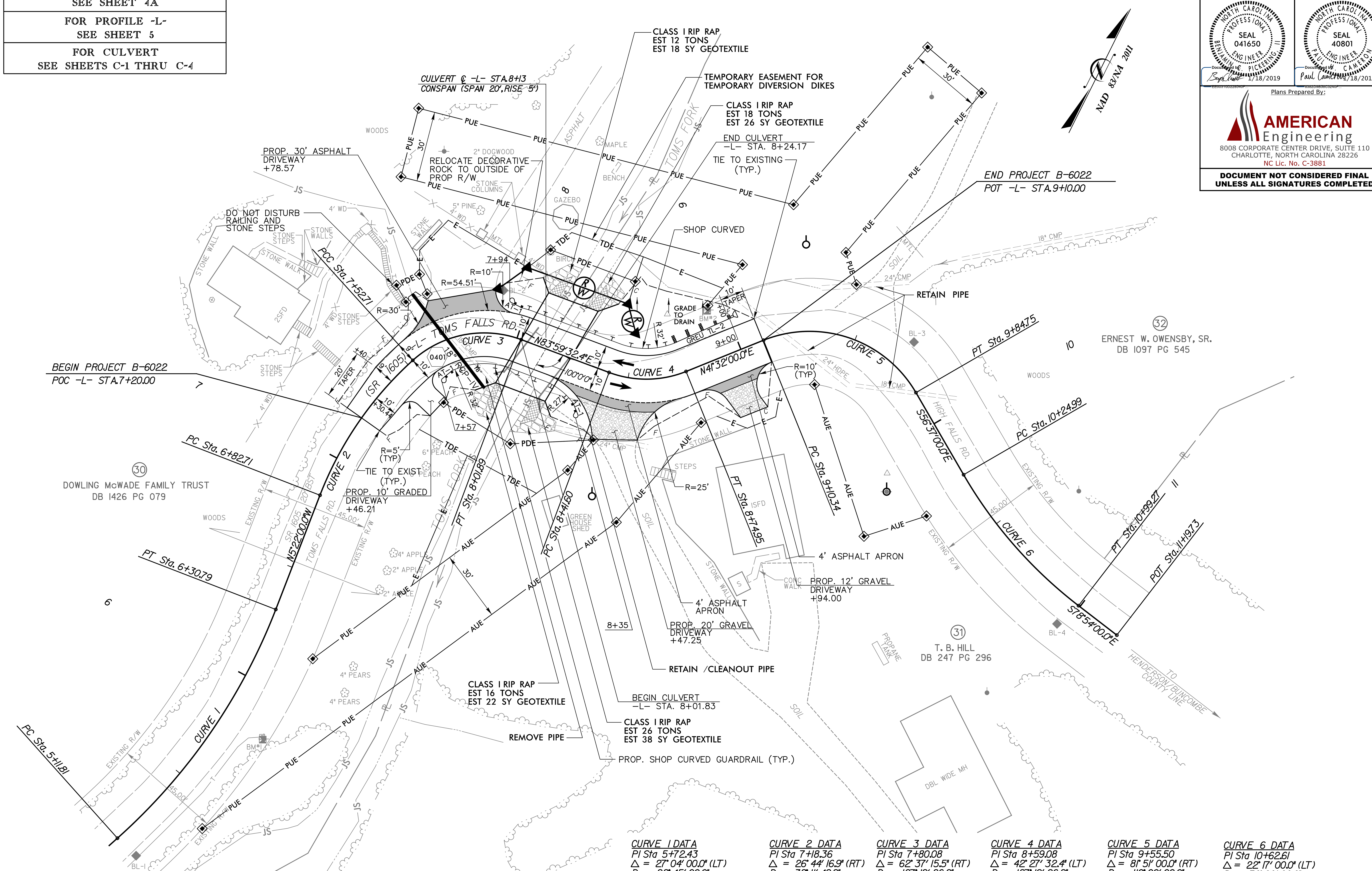
AMERICAN Engineering
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NORTH CAROLINA 28226
NC Lic. No. C-3881

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

FOR SUPERELEVATION, RATES & TRANSITIONS AND R/W STA/OFF SEE SHEET 4A

FOR PROFILE -L- SEE SHEET 5

FOR CULVERT SEE SHEETS C-1 THRU C-4



CURVE 1 DATA	CURVE 2 DATA	CURVE 3 DATA	CURVE 4 DATA	CURVE 5 DATA	CURVE 6 DATA
PI Sta 5+72.43	PI Sta 7+18.36	PI Sta 7+80.08	PI Sta 8+59.08	PI Sta 9+55.50	PI Sta 10+62.61
Δ = 27° 04' 00.0" (LT)	Δ = 26° 44' 16.9" (RT)	Δ = 62° 37' 15.5" (RT)	Δ = 42° 27' 32.4" (LT)	Δ = 81° 51' 00.0" (RT)	Δ = 22° 17' 00.0" (LT)
D = 22° 45' 00.0"	D = 38° 11' 49.9"	D = 127° 19' 26.2"	D = 127° 19' 26.2"	D = 110° 00' 00.0"	D = 30° 00' 00.0"
L = 118.97'	L = 70.00'	L = 49.18'	L = 33.35'	L = 74.41'	L = 74.28'
T = 60.62'	T = 35.65'	T = 27.37'	T = 17.48'	T = 45.16'	T = 37.61'
R = 251.85'	R = 150.00'	R = 45.00'	R = 45.00'	R = 52.09'	R = 190.99'

8/17/99

1/8/2019 Pw:\gfpwing02.corporate.garnettfleming.com:GFPW02\Documents\Projects\57719\440215\Roadway\Proj\B440215_Rdy_psh_4.dgn
Rob Wright

PROJECT REFERENCE NO.	SHEET NO.
B-6022	4A

HENDERSON COUNTY CULVERT #440215

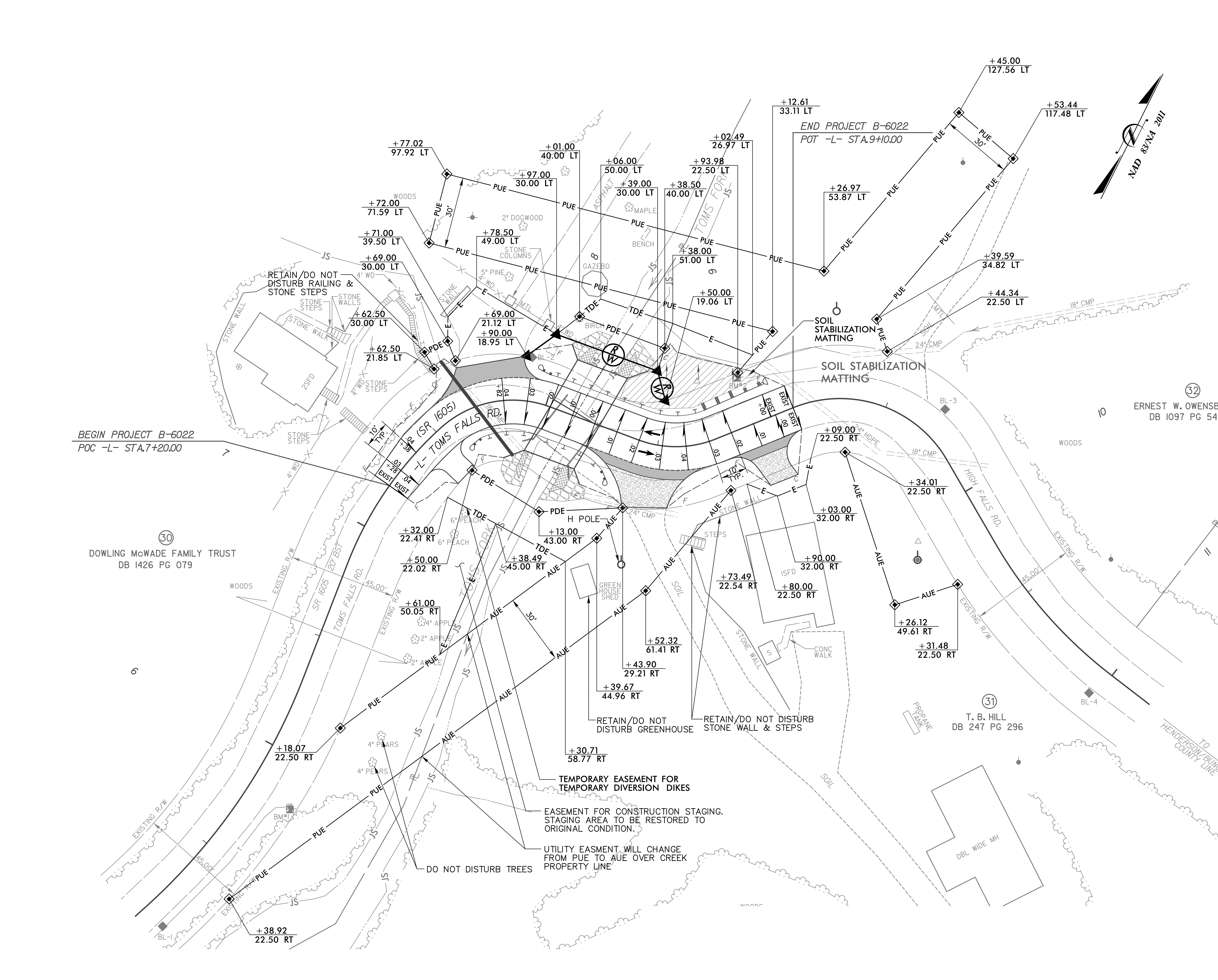
R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041650 ENGINEER BENJAMIN C. PICKERING — 1/18/2019	NORTH CAROLINA PROFESSIONAL SEAL 40801 ENGINEER PAUL CAMERON — 1/18/2019

Plans Prepared By:

AMERICAN Engineering
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NORTH CAROLINA 28226
NC Lic. No. C-3881

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PROJECT REFERENCE NO.	SHEET NO.
B-6022	5

HENDERSON COUNTY CULVERT #440215

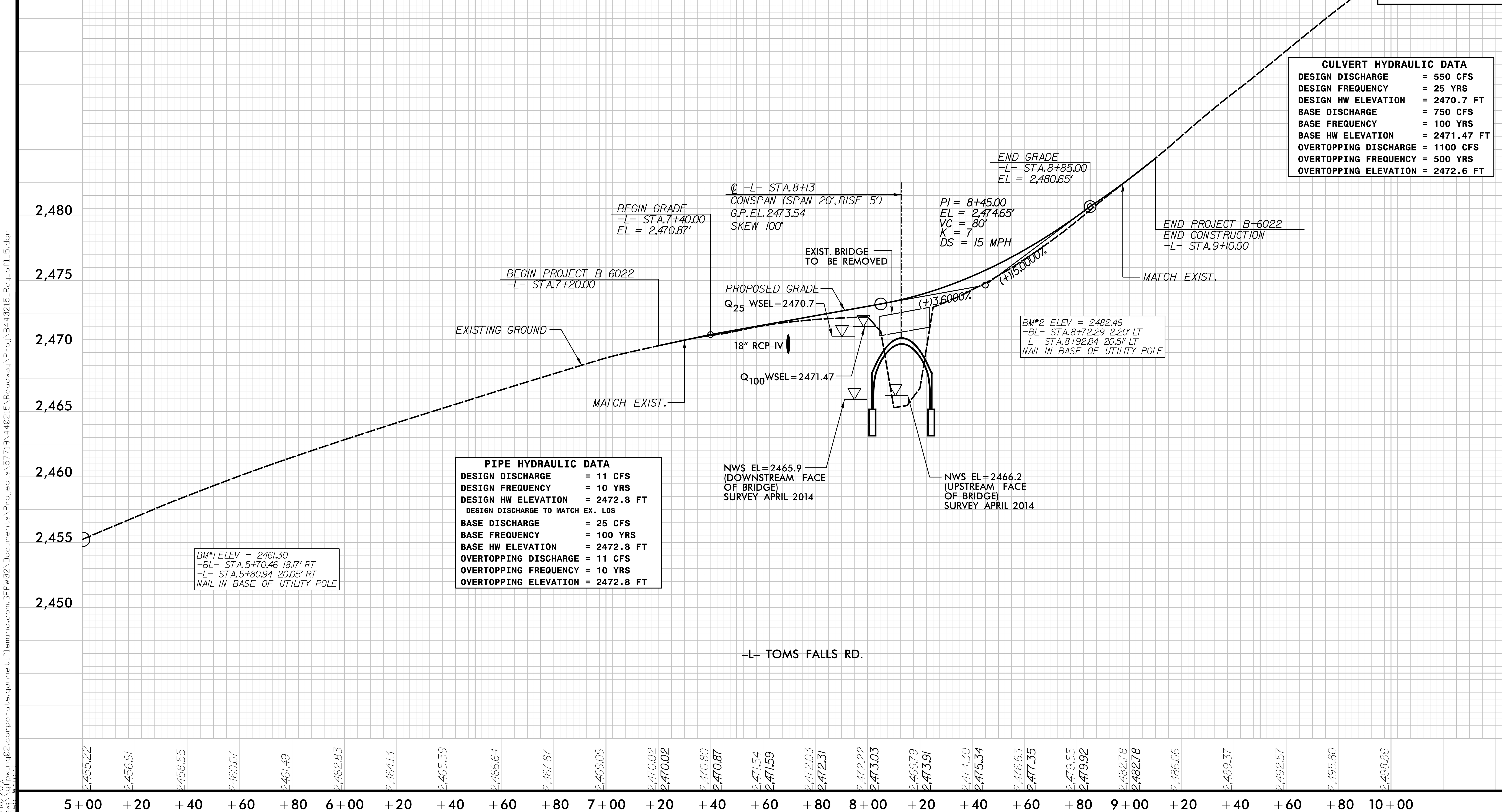
R/W SHEET NO.

ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 041650 ENGINEER BENJAMIN S. PICKERING 7/18/2019	NORTH CAROLINA PROFESSIONAL SEAL 40801 ENGINEER PAUL CAMERON 7/18/2019

Plans Prepared By:

AMERICAN Engineering
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NORTH CAROLINA 28226
NC Lic. No. C-3881

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



CULVERT HYDRAULIC DATA

DESIGN DISCHARGE	= 550 CFS
DESIGN FREQUENCY	= 25 YRS
DESIGN HW ELEVATION	= 2470.7 FT
BASE DISCHARGE	= 750 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2471.47 FT
OVERTOPPING DISCHARGE	= 1100 CFS
OVERTOPPING FREQUENCY	= 500 YRS
OVERTOPPING ELEVATION	= 2472.6 FT

PIPE HYDRAULIC DATA

DESIGN DISCHARGE	= 11 CFS
DESIGN FREQUENCY	= 10 YRS
DESIGN HW ELEVATION	= 2472.8 FT
DESIGN DISCHARGE TO MATCH EX. LOS	
BASE DISCHARGE	= 25 CFS
BASE FREQUENCY	= 100 YRS
BASE HW ELEVATION	= 2472.8 FT
OVERTOPPING DISCHARGE	= 11 CFS
OVERTOPPING FREQUENCY	= 10 YRS
OVERTOPPING ELEVATION	= 2472.8 FT

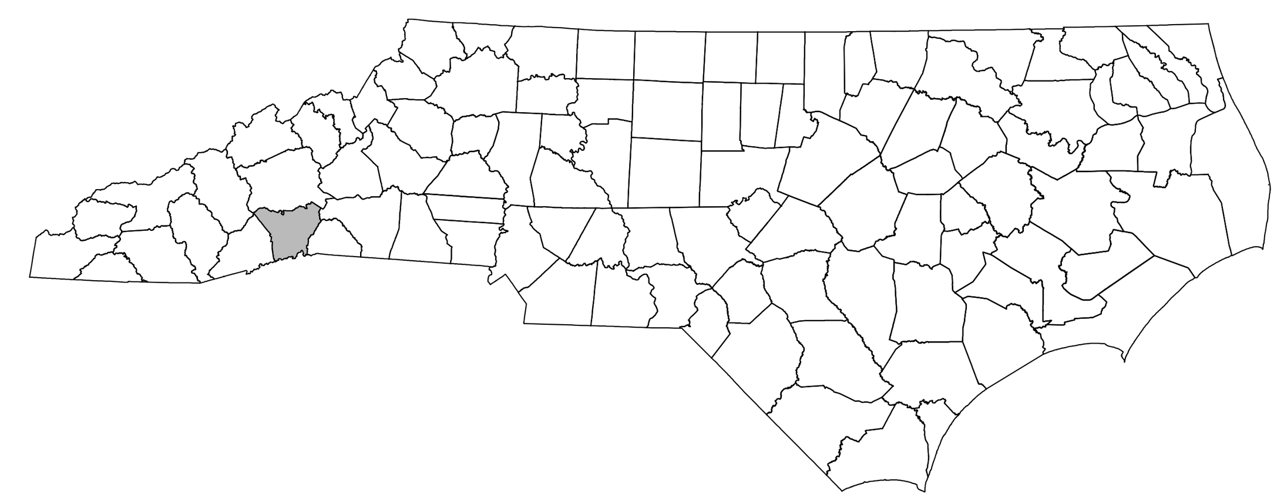
8/17/99

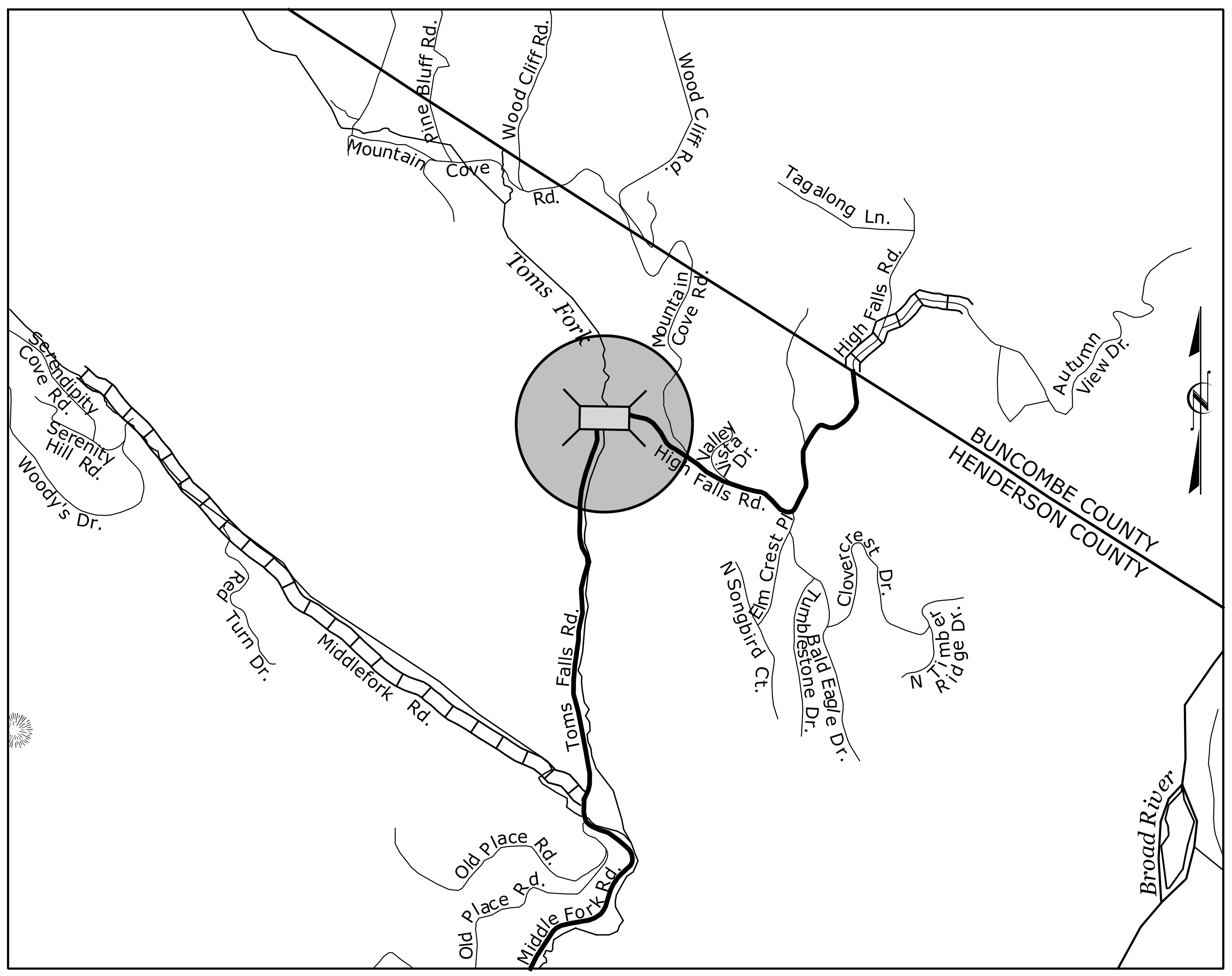
7/8/2019
R:\gfpwing02.corporate.gannettfleming.com\GFPW02\Documents\Projects\57719\440215\Roadway\Proj\B440215_Rdy_pfl_5.dgn
Rob Wright

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

TRANSPORTATION MANAGEMENT PLAN

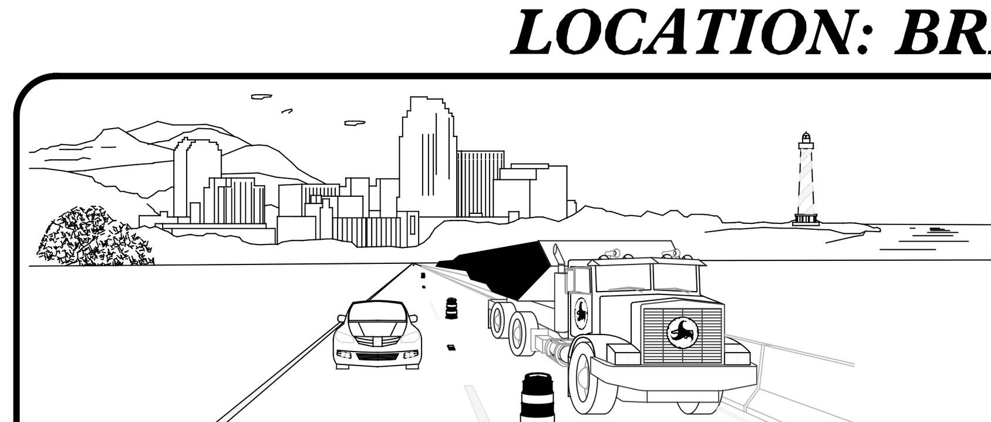
HENDERSON COUNTY





VICINITY MAP
NTS

LOCATION: BRIDGE #440215 OVER TOMS FORK ON SR 1605 (TOMS FALLS RD.)



WORK ZONE SAFETY & MOBILITY
"from the MOUNTAINS to the COAST"

N.C.D.O.T. WORK ZONE TRAFFIC CONTROL
1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561
750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY)
PHONE: (919) 773-2800 FAX: (919) 771-2745

JOSEPH E. HUMMER, P.E.	STATE TRAFFIC MANAGEMENT ENGINEER
ALLISON C. JOHNSON, P.E.	TRAFFIC CONTROL PROJECT ENGINEER
BENJAMIN C. PICKERING II, P.E.	TRAFFIC CONTROL PROJECT DESIGN ENGINEER
	TRAFFIC CONTROL DESIGN ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

SHEET NO.
TMP-1

INDEX OF SHEETS

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

Plans Prepared By:

AMERICAN Engineering
AMERICAN ENGINEERING ASSOCIATES - SOUTHEAST, PA
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NC 28226
704-375-2438 NC Lic. No. C-3881

APPROVED: A. Chris Johnson
DATE: 1/18/2019

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLISON C. JOHNSON

PROJECT: B-6022

1/10/2019
pw:\\gfpwing02.corporate.garnettfleming.com:GFPW02\Documents\Projects\57719\440215\Traffic\TrafficControl\TCP\B440215_TC_TMP_1.dgn
Deb Wright

PROJECT REFERENCE NO.	SHEET NO.
B-6022	TMP-1A
HENDERSON COUNTY CULVERT #440215	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES - TYPE III
1150.01	FLAGGING DEVICES
1160.01	TEMPORARY CRASH CUSHION - REFLECTIVE END TREATMENT
1165.01	TRUCK MOUNTED ATTENUATOR - DELINEATION
1170.01	POSITIVE PROTECTION - PORTABLE CONCRETE BARRIER
1180.01	SKINNY DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - DIVIDED AND UNDIVIDED ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINATION

LEGEND

GENERAL

- DIRECTION OF TRAFFIC FLOW
- DIRECTION OF PEDESTRIAN TRAFFIC FLOW
- EXIST. EDGE OF PAVEMENT
- NORTH ARROW
- PROPOSED PAVEMENT
- WORK AREA
- CONSTRUCT UNDER TRAFFIC
- TEMPORARY PAVEMENT

SIGNALS

- EXISTING
- PROPOSED
- TEMP TEMPORARY

PAVEMENT MARKINGS

- EXISTING LINES
- TEMPORARY LINES

TRAFFIC CONTROL DEVICES

- BARRICADE (TYPE I)
- BARRICADE (TYPE II)
- BARRICADE (TYPE III)
- PORTABLE CONCRETE BARRIER
- CONE
- TUBULAR MARKER
- DRUM
- SKINNY DRUM
- TEMPORARY CRASH CUSHION
- FLASHING ARROW BOARD
- FLAGGER
- WARNING FLAGS
- LAW ENFORCEMENT
- TRUCK MOUNTED ATTENUATOR (TMA)
- CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING

- PORTABLE SIGN
- STATIONARY SIGN
- STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS

- CRYSTAL/CRYSTAL
- CRYSTAL/RED
- YELLOW/YELLOW

PAVEMENT MARKING SYMBOLS

- PAVEMENT MARKING SYMBOLS

APPROVED: DocuSigned by: A. Chris Johnson FEBEA54AFC014A5... DATE: 1/18/2019

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLISON C. JOHNSON

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

ROADWAY STANDARD DRAWINGS & LEGEND

PROJECT REFERENCE NO.	SHEET NO.
B-6022	TMP-1B
HENDERSON COUNTY CULVERT #440215	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

MAINTAIN DRIVEWAY ACCESS TO PROPERTY OWNERS AT ALL TIMES.

TRAFFIC PATTERN ALTERATIONS

A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

B) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

C) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

LANE AND SHOULDER CLOSURE REQUIREMENTS

D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

TRAFFIC BARRIER

I) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE, WITHOUT APPROVAL BY THE ENGINEER.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

J) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT

TRAFFIC CONTROL DEVICES

K) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT,10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

LOCAL NOTES

1) TEMPORARY TRAFFIC SIGNALS SHOWN ARE ASSUMED TO BE PORTABLE TEMPORARY TRAFFIC SIGNALS SUPPLIED BY THE CONTRACTOR. PORTABLE TEMPORARY TRAFFIC SIGNALS ARE TO BE SET A MINIMUM OF 2 FEET OUTSIDE OF THE LANE BEING CONTROLLED. THE BOTTOM OF THE SIGNAL HEAD HOUSING SHALL BE A MINIMUM OF 7 FEET ABOVE THE PAVEMENT.

2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING A MINIMUM OF ONE (1) MONTH BEFORE THE TEMPORARY TRAFFIC SIGNAL INSTALLATION IS REQUIRED AND 15 DAYS PRIOR TO THE INSTALLATION OF A LANE CLOSURE.

3) PLACE REFLECTIVE DELINEATORS ON TOP OF PORTABLE CONCRETE BARRIER PER NCDOT STD 1170.01 SHEET 5 OF 5 - SPACED AT 25 FOOT INCREMENTS PER NCDOT STD 1261.01.

4) CONTRACTOR SHALL ASSURE THAT THE ANCHORING OF THE PORTABLE CONCRETE BARRIER AND ASSOCIATED CRASH CUSHIONS DOES NOT INTERFERE WITH EXISTING OR PROPOSED UTILITIES.

5) BARRIER SHALL BE ANCHORED WHERE DROPOFFS EXCEED ALLOWABLE DISTANCE, WHERE BARRIER DEFLECTION DOES NOT MEET MINIMUM REQUIREMENTS, OR AS DIRECTED BY THE ENGINEER.

6) ACCESS TO HIDAWAY COVE SHALL BE MAINTAINED FOR FIRE & EMERGENCY SERVICES.

7) THE CONTRACTOR SHALL PROVIDE ONE MONTH NOTICE TO ENGINEER, COUNTY EMS AND COUNTY SCHOOL OFFICIALS PRIOR TO ROAD CLOSURES.

PHASING NOTES

STAGE 1

1. THE CONTRACTOR SHALL PLACE ALL CONSTRUCTION WARNING ("ROAD WORK AHEAD" W20-1, "END ROAD WORK" G20-2A) SIGNS THROUGHOUT THE PROJECT WITHIN THE TIME FRAME REQUIRED IN THE GENERAL NOTES PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, INCLUDING EROSION AND SEDIMENT CONTROL, AND SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED.

2. INSTALL EROSION CONTROL DEVICES THROUGHOUT THE PROJECT IN ACCORDANCE WITH THE APPROVED EROSION CONTROL PLANS, CLEARING ONLY THE AREA NECESSARY TO INSTALL THE DEVICES.

3. USING APPLICABLE SHEETS FROM NCDOT STD. 1101.02 CONSTRUCT TEMPORARY PAVEMENT FOR STAGE 2 - PHASE 1.

STAGE 2
PHASE 1

1. CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRIERS/ANCHORED BARRICADES,DRUMS, AND TEMPORARY PAVEMENT NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE AS DEPICTED ON SHEET TMP-3. INSTALL TEMPORARY SIGNALIZATION TO MAINTAIN A SINGLE LANE OF TRAFFIC FOR BOTH DIRECTIONS OF TRAFFIC WITH ALTERNATING OPERATION ON THE SOUTHSIDE OF THE EXISTING BRIDGE #4400215. USE APPLICABLE SHEETS FROM NCDOT STD 1101.02. REMOVE ANY CONFLICTING SIGNS BEFORE SHIFTING TRAFFIC TO A NEW PATTERN.

2. INSTALL SLOPE PROTECTION OR TEMPORARY SHORING AS REQUIRED.

3. CONSTRUCT ANY DRAINAGE FEATURES NECESSARY TO MAINTAIN POSITIVE FLOW DURING CONSTRUCTION.

4. CONSTRUCT THE NORTHSIDE OF THE PROPOSED CULVERT AND PROPOSED ROADWAY TO THE GREATEST EXTENT POSSIBLE. USE SLOPE PROTECTION OR TEMPORARY SHORING AS NECESSARY BETWEEN THE EXISTING ROAD & PROPOSED CONSTRUCTION.

5. CONSTRUCT PROPOSED AND TEMPORARY PAVEMENT REQUIRED FOR STAGE 2 - PHASE 2.

STAGE 2
PHASE 2 - STEP 1

1. CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRIES/ANCHORED BARRICADES, DRUMS, AND TEMPORARY PAVEMENT NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE AS DEPICTED ON SHEET TMP-4. ADJUST TEMPORARY SIGNALIZATION TO MAINTAIN A SINGLE LANE OF TRAFFIC ON THE NORTHSIDE OF THE NEWLY CONSTRUCTED CULVERT FOR BOTH DIRECTIONS OF TRAFFIC WITH ALTERNATING OPERATION. USE APPLICABLE SHEETS FROM NCDOT STD 1101.02. REMOVE ANY CONFLICTING SIGNS BEFORE SHIFTING TRAFFIC TO A NEW PATTERN.

2. CONSTRUCT ANY DRAINAGE FEATURES NECESSARY TO MAINTAIN POSITIVE FLOW DURING CONSTRUCTION.

3. CONSTRUCT THE SOUTHSIDE OF THE PROPOSED CULVERT, PROPOSED DRAINAGE FEATURES, PROPOSED GRADING AND PROPOSED ROADWAY TO THE GREATEST EXTENT POSSIBLE. USE SLOPE PROTECTION OR TEMPORARY SHORING AS NECESSARY BETWEEN THE EXISTING ROAD & PROPOSED CONSTRUCTION.

4. OPEN ROADWAY TO TWO-LANE, TWO-WAY TRAFFIC OPERATION, UTILIZING TEMPORARY DRUMS AS REQUIRED.

5. INSTALL PIPE AND REPLACE PAVEMENT AT -L- STATION 7+71.00.

PHASE 2 - STEP 2

1. ANY REMAINING EXISTING PAVEMENT NOT COMPLETED IN PHASE 1 OR PHASE 2 USING FLAGGING OPERATIONS AS NECESSARY, MAINTAINING ONE LANE OF TRAFFIC IN EACH DIRECTION USING APPLICABLE SHEETS FROM NCDOT STD 1101.02.

2. REMOVE ANY REMAINING TEMPORARY PAVEMENT.

3. CONSTRUCT PROPOSED DRAINAGE AND PROPOSED GRADING ON THE SOUTHSIDE.

STAGE 3

1. CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRICADES AND DRUMS NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE. MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION USING APPLICABLE SHEETS FROM NCDOT STD 1101.02.

2. SEED AND MULCH ALL AREAS DISTURBED AS A RESULT OF THIS CONSTRUCTION.

3. REMOVE ALL EQUIPMENT, TEMPORARY TRAFFIC CONTROL MEASURES, TEMPORARY STOP BAR AND ROAD WORK SIGNAGE AND OPEN THE PROJECT TO ALL TRAFFIC.

APPROVED: DocuSigned by: A. Chris Johnson FEBEA54AFC014A5... DATE: 1/18/2019

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLISON C. JOHNSON

DIVISION OF HIGHWAYS — STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION — WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN

8/17/99
1/10/2019
Pw:\gfpwing02.corporate.gannettfleming.com:GFPW02\Documents\Projects\57719\440215\Traffic\TrafficControl\TCP\B440215_TC_TMP_2.dgn
Rob Wright

PROJECT REFERENCE NO.	SHEET NO.
B-6022	TMP-2
HENDERSON COUNTY CULVERT #440215	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

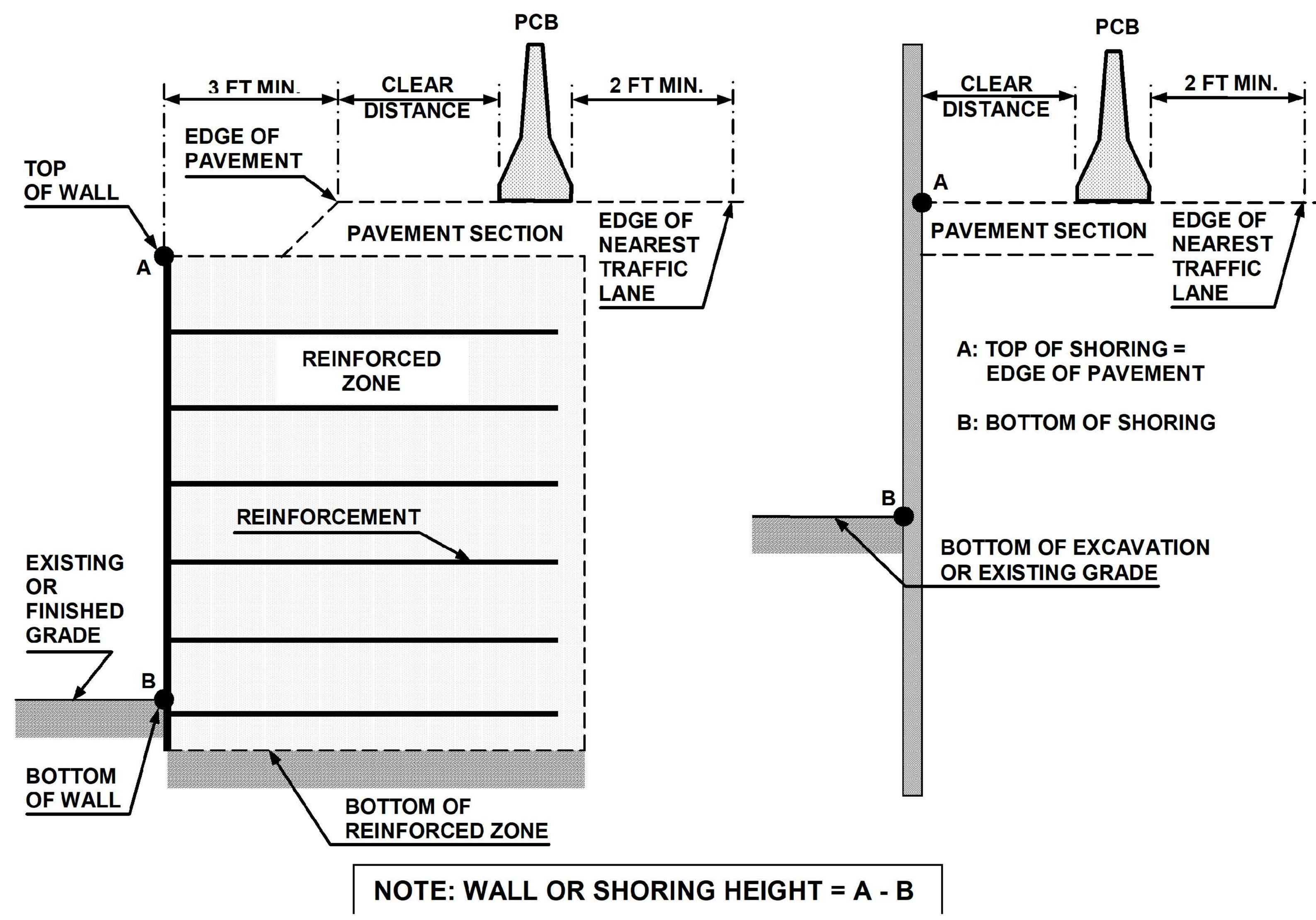


FIGURE A

NOTES

1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.

2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).

3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).

4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.

5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.

6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.

7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.

8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.

9- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.

10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.

11- SHORING SHALL NOT BE PLACED IN THE STREAM.

MINIMUM REQUIRED CLEAR DISTANCE, inches

Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

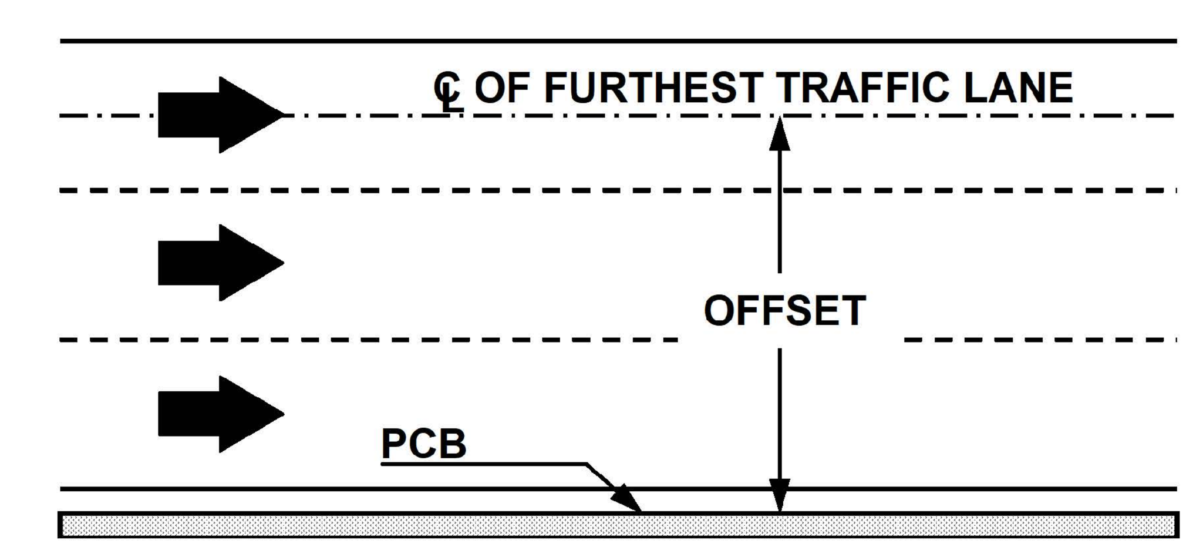


FIGURE B

APPROVED: Chris Johnson DATE: 1/18/2019

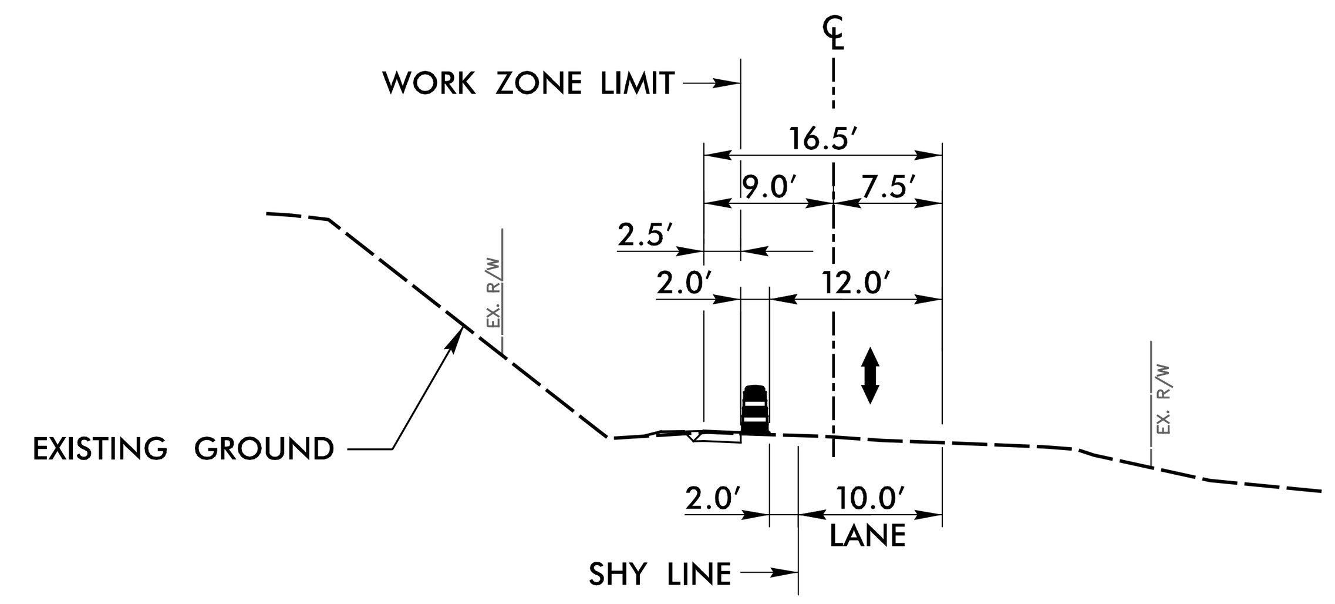
SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15424 ALLISON C. JOHNSON

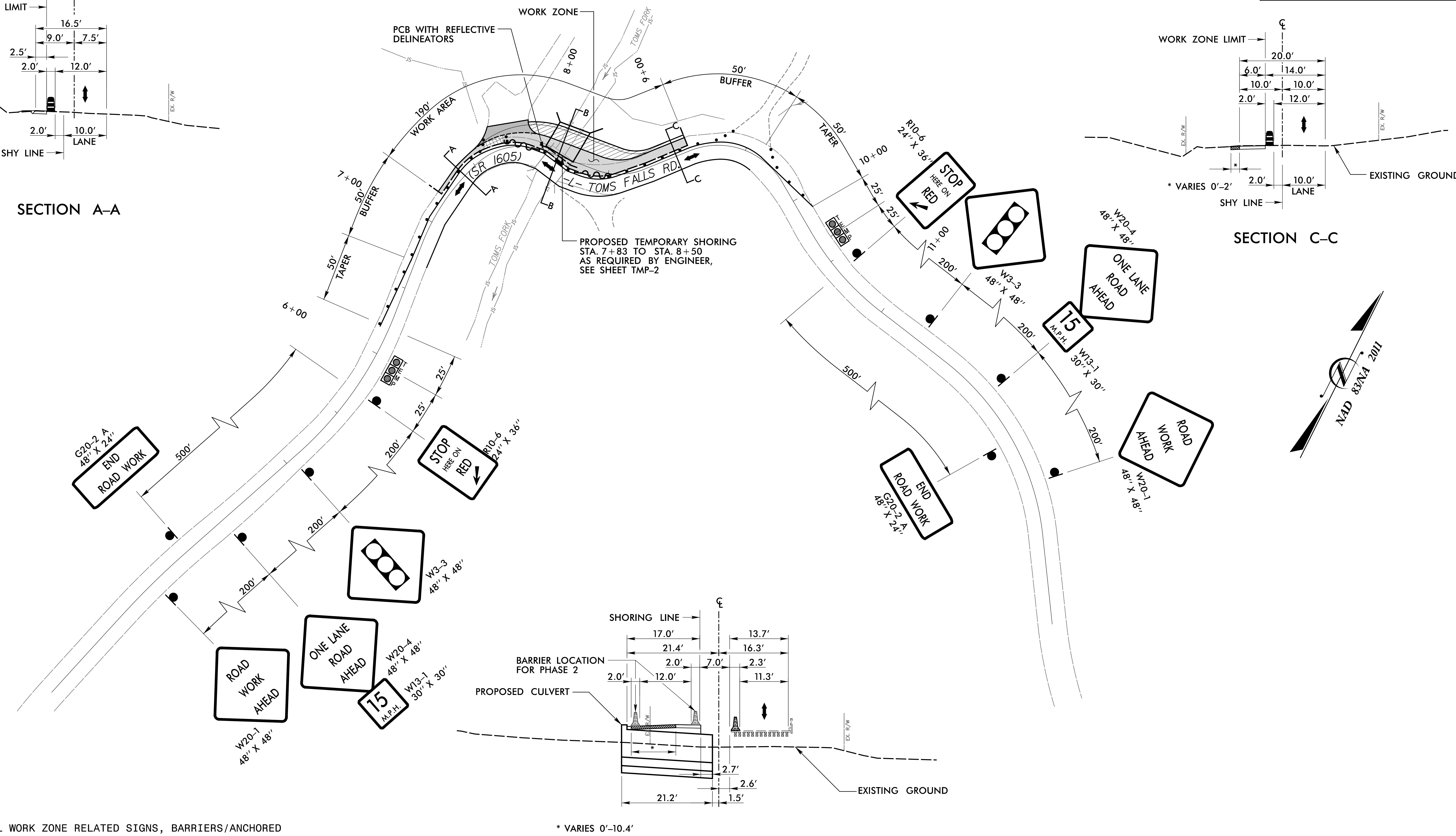
DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS

PROJECT REFERENCE NO.	SHEET NO.
B-6022	TMP-3
HENDERSON COUNTY CULVERT #440215	
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



SECTION A–A



SECTION B–B

PHASING NOTES

STAGE 2
PHASE 1

1. CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRIERS/ANCHORED BARRICADES,DRUMS, AND TEMPORARY PAVEMENT NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE AS DEPICTED ON SHEET TMP-3. INSTALL TEMPORARY SIGNALIZATION TO MAINTAIN A SINGLE LANE OF TRAFFIC FOR BOTH DIRECTIONS OF TRAFFIC WITH ALTERNATING OPERATION ON THE SOUTHSIDE OF THE EXISTING BRIDGE #4400215. USE APPLICABLE SHEETS FROM NCDOT STD 1101.02. REMOVE ANY CONFLICTING SIGNS BEFORE SHIFTING TRAFFIC TO A NEW PATTERN.

2. INSTALL SLOPE PROTECTION OR TEMPORARY SHORING AS REQUIRED.

3. CONSTRUCT ANY DRAINAGE FEATURES NECESSARY TO MAINTAIN POSITIVE FLOW DURING CONSTRUCTION.

4. CONSTRUCT THE NORTHSIDE OF THE PROPOSED CULVERT AND PROPOSED ROADWAY TO THE GREATEST EXTENT POSSIBLE. USE SLOPE PROTECTION OR TEMPORARY SHORING AS NECESSARY BETWEEN THE EXISTING ROAD & PROPOSED CONSTRUCTION.

5. CONSTRUCT PROPOSED AND TEMPORARY PAVEMENT REQUIRED FOR STAGE 2 - PHASE 2.

40 20 0 40 80
Scale 1" = 40'

APPROVED: [signature] DATE: 1/18/2019

SEAL — NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLISON C. JOHNSON

DIVISION OF HIGHWAYS — STATE OF NORTH CAROLINA — DEPARTMENT OF TRANSPORTATION — WORK ZONE TRAFFIC CONTROL

TRAFFIC MANAGEMENT PLAN

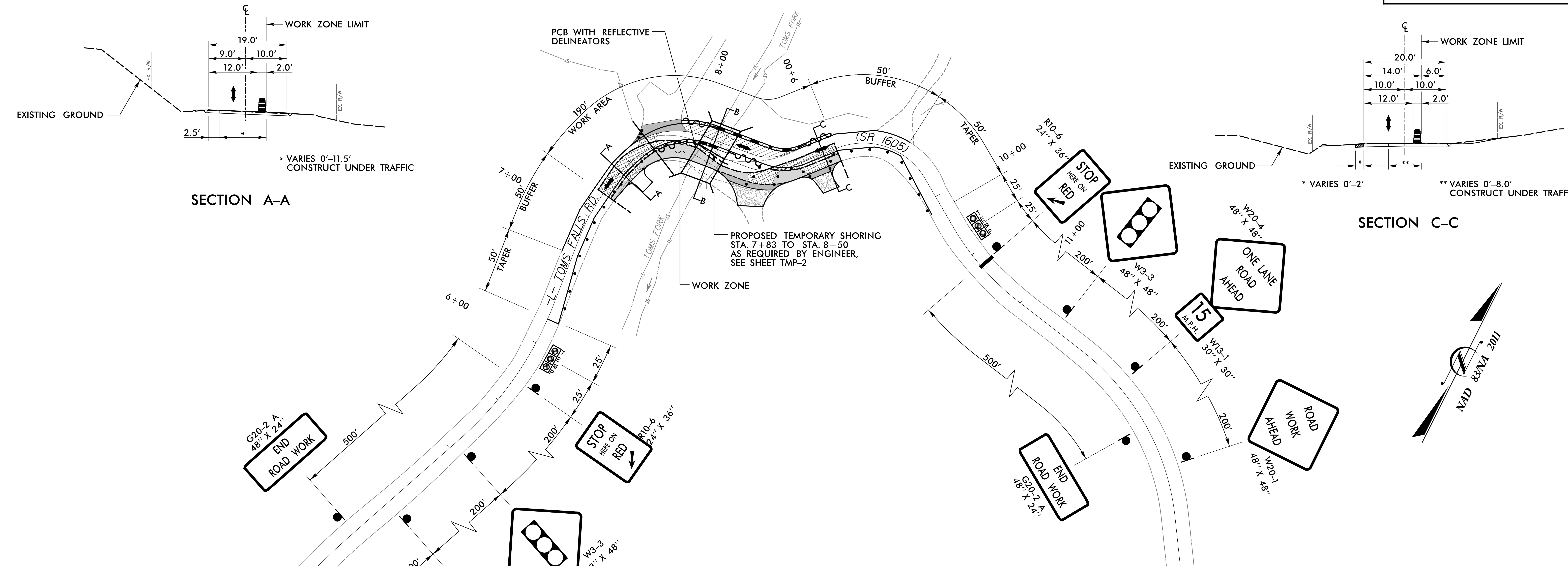
PHASE 1

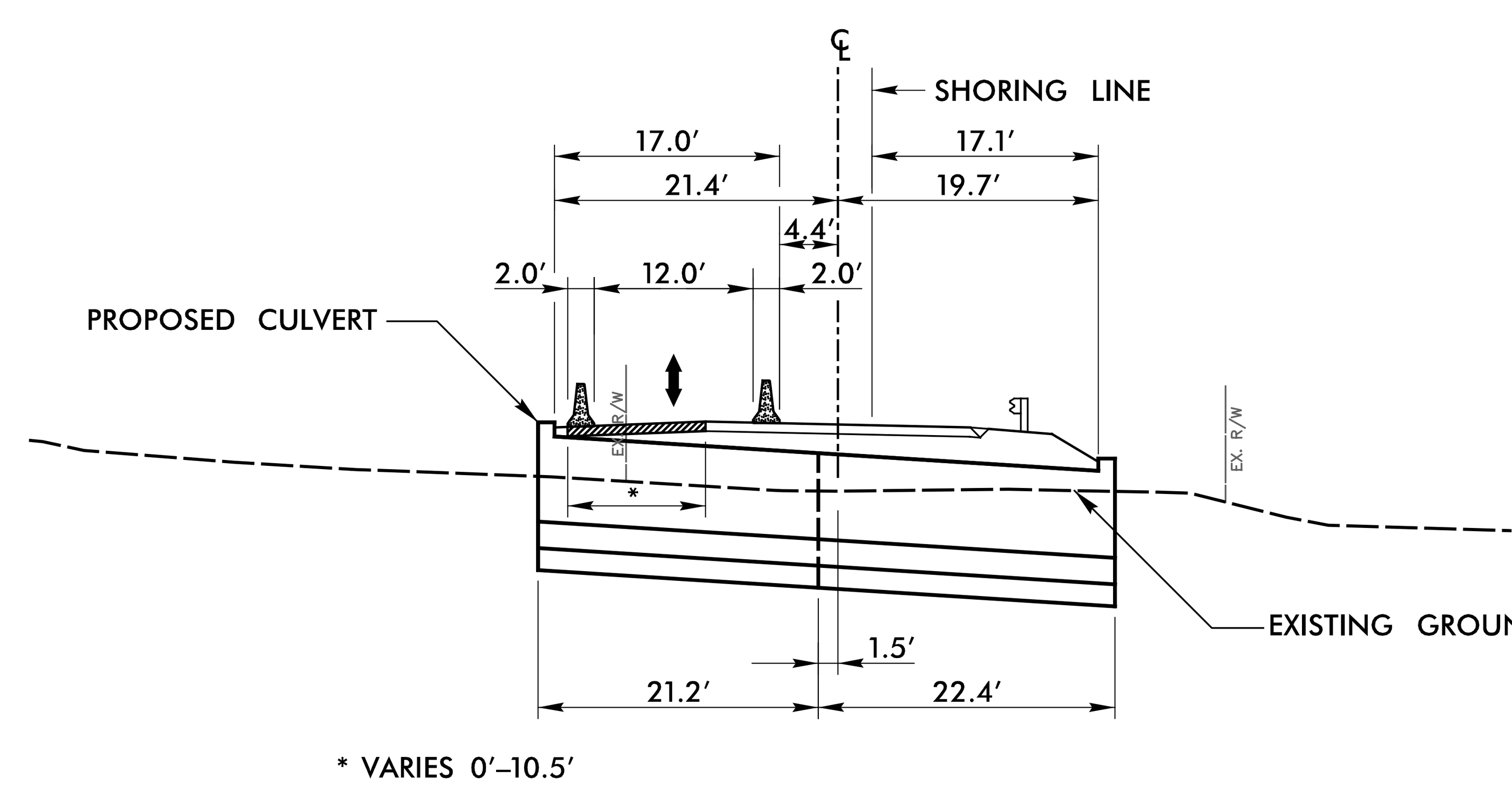
8/17/99
1/10/2019

PROJECT REFERENCE NO.	SHEET NO.
B-6022	TMP-4

HENDERSON COUNTY CULVERT #440215

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED





SECTION B-B

PHASING NOTES

STAGE 2
PHASE 2 - STEP 1

1. CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRIES/ANCHORED BARRICADES, DRUMS, AND TEMPORARY PAVEMENT NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE AS DEPICTED ON SHEET TMP-4. ADJUST TEMPORARY SIGNALIZATION TO MAINTAIN A SINGLE LANE OF TRAFFIC ON THE NORTHSIDE OF THE NEWLY CONSTRUCTED CULVERT FOR BOTH DIRECTIONS OF TRAFFIC WITH ALTERNATING OPERATION. USE APPLICABLE SHEETS FROM NCDOT STD 1101.02. REMOVE ANY CONFLICTING SIGNS BEFORE SHIFTING TRAFFIC TO A NEW PATTERN.

2. CONSTRUCT ANY DRAINAGE FEATURES NECESSARY TO MAINTAIN POSITIVE FLOW DURING CONSTRUCTION.

3. CONSTRUCT THE SOUTHSIDE OF THE PROPOSED CULVERT, PROPOSED DRAINAGE FEATURES, PROPOSED GRADING AND PROPOSED ROADWAY TO THE GREATEST EXTENT POSSIBLE. USE SLOPE PROTECTION OR TEMPORARY SHORING AS NECESSARY BETWEEN THE EXISTING ROAD & PROPOSED CONSTRUCTION.

4. OPEN ROADWAY TO TWO-LANE, TWO-WAY TRAFFIC OPERATION, UTILIZING TEMPORARY DRUMS AS REQUIRED.

5. INSTALL PIPE AND REPLACE PAVEMENT AT -L- STATION 7+71.00.

PHASING NOTES

PHASE 2 - STEP 2

1. ANY REMAINING EXISTING PAVEMENT NOT COMPLETED IN PHASE 1 OR PHASE 2 USING FLAGGING OPERATIONS AS NECESSARY, MAINTAINING ONE LANE OF TRAFFIC IN EACH DIRECTION USING APPLICABLE SHEETS FROM NCDOT STD 1101.02.

2. REMOVE ANY REMAINING TEMPORARY PAVEMENT.

3. CONSTRUCT PROPOSED DRAINAGE AND PROPOSED GRADING ON THE SOUTHSIDE.

40 20 0 40 80
Scale 1" = 40'

APPROVED: A. Chris Johnson DATE: 1/18/2019

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15424 ALLISON C. JOHNSON

DIVISION OF HIGHWAYS STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION WORK ZONE TRAFFIC CONTROL

TRAFFIC MANAGEMENT PLAN

PHASE 2

PROJECT REFERENCE NO.	SHEET NO.
B-6022	PMP-1

APPROVED: A. Chris Johnson
DATE: 1/18/2019

SEAL: NORTH CAROLINA PROFESSIONAL SEAL 15424 ENGINEER ALLISON C. JOHNSON

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PAVEMENT MARKING PLANS

HENDERSON COUNTY

LOCATION: BRIDGE #440215 OVER TOMS FORK ON SR 1605 (TOMS FALLS ROAD)

ROADWAY STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - DIVIDED AND UNDIVIDED ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINATION

PAVEMENT MARKING SCHEDULE

ASPHALT PAVEMENT DESIGN
(AS SHOWN)

PAVEMENT MARKING LINES

PA – PAINT – WHITE EDGE LINE (4")
PI – PAINT – YELLOW DOUBLE CENTER LINE (4")

GENERAL NOTES

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

A) INSTALL PAVEMENT MARKINGS AND PAVEMENT MARKERS ON THE FINAL SURFACE AS FOLLOWS:

ASPHALT PAVEMENT DESIGN:

ROAD NAME	MARKING	MARKER
SR 1605	PAINT	N/A

B) TIE PROPOSED PAVEMENT MARKING LINES TO EXISTING PAVEMENT MARKING LINES.

C) REMOVE/REPLACE ANY CONFLICTING/DAMAGED PAVEMENT MARKINGS AND MARKERS.

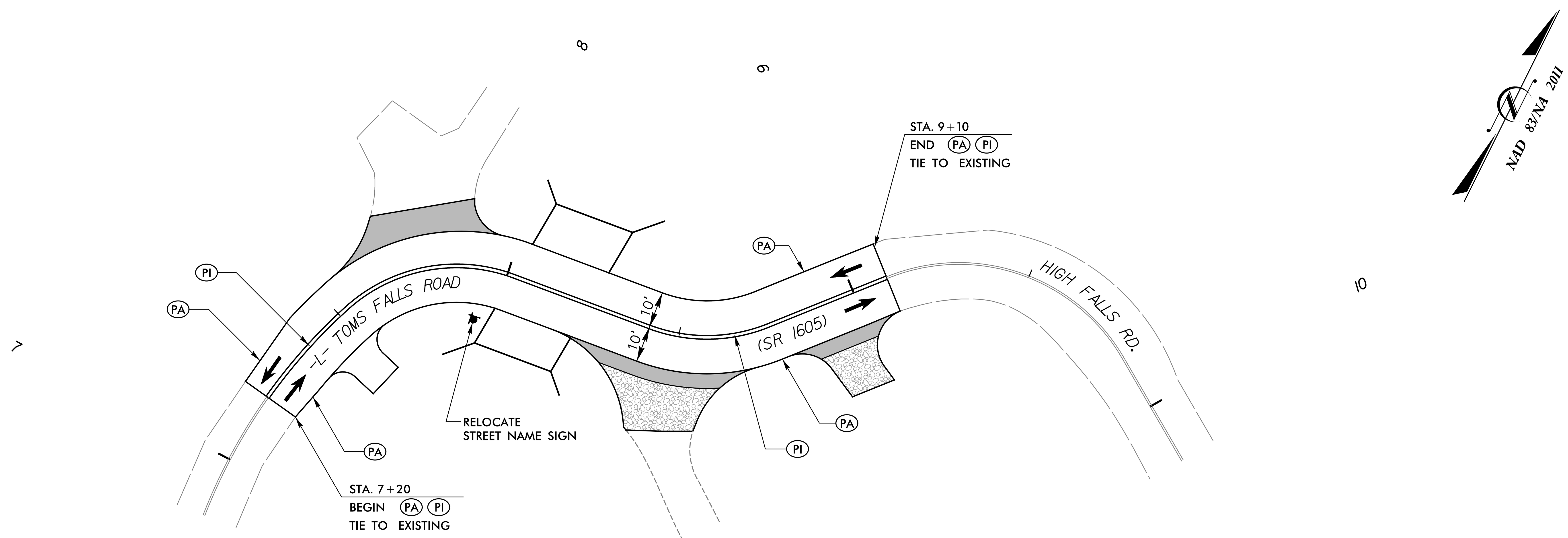
D) PASSING ZONES WILL BE DETERMINED IN THE FIELD AND MUST BE APPROVED BY THE ENGINEER.

INDEX OF SHEETS

Plans Prepared By:
AMERICAN Engineering
AMERICAN ENGINEERING ASSOCIATES - SOUTHEAST, PA
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NC 28226
704-375-2438 NC Lic. No. C-3881

PROJECT REFERENCE NO.	SHEET NO.
B-6022	PMP-2
HENDERSON COUNTY CULVERT #440215	

DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED



PERMANENT PAVEMENT MARKING SCHEDULE

SYMBOL	WIDTH	COLOR	MATERIAL	DESCRIPTION
PA	4"	WHITE	PAINT	EDGE LINE
PI	4"	YELLOW	PAINT	DOUBLE CENTER

20 10 0 20 40
Scale 1" = 20'

APPROVED: A. Chris Johnson DATE: 1/18/2019

SEAL

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 15424 ALLISON C. JOHNSON

DIVISION OF HIGHWAYS · STATE OF NORTH CAROLINA · DEPARTMENT OF TRANSPORTATION · WORK ZONE TRAFFIC CONTROL

PAVEMENT MARKING & SIGNING PLAN

8/17/99
1/10/2019

09/08/99

PROJECT: B–6022

CONTRACT: DN00271

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

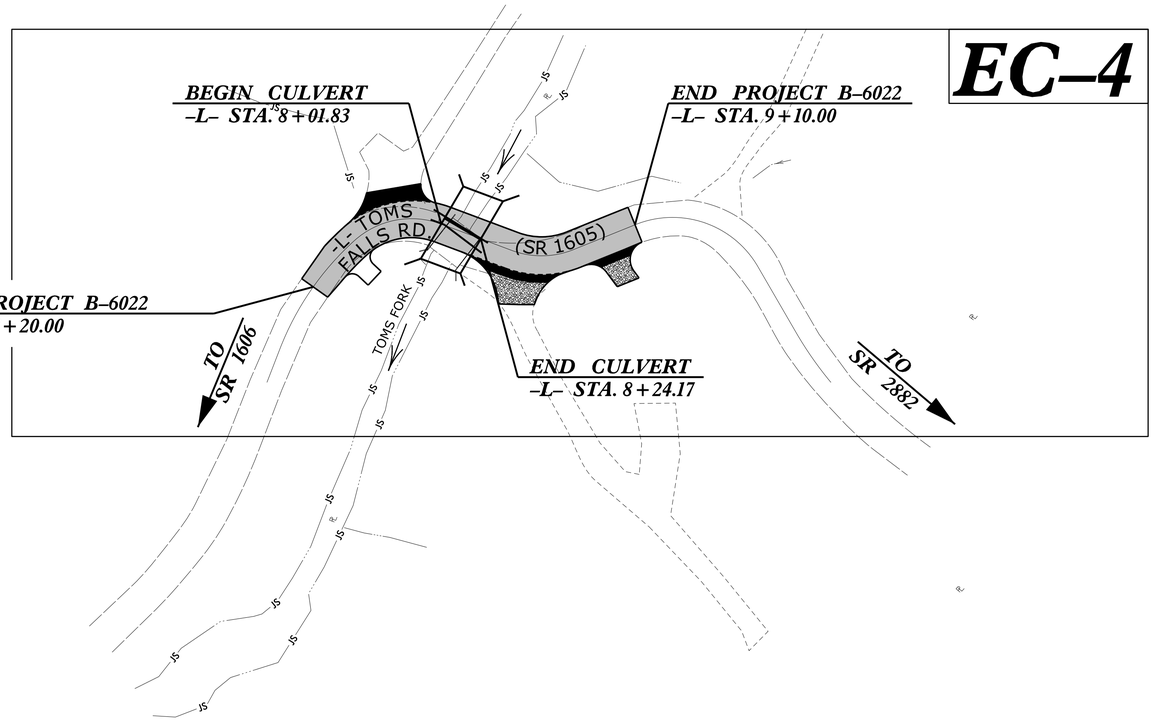
HENDERSON COUNTY

LOCATION: BRIDGE #440215 OVER TOMS FORK ON SR 1605 (TOMS FALLS ROAD)

TYPE OF WORK: PAVING, GRADING, DRAINAGE & CULVERT

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B–6022	EC-1	
HENDERSON COUNTY		CULVERT #440215	

STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION
17BP.14.R.102	–	PE
17BP.14.R.102	–	RW & UTILITIES
48217.3.1	BRZ–1605(009)	CONST



NCDOT CONTACT:
HIGHWAY DIVISION 14 BRIDGE MANAGER
ADAM DOCKERY
(828) 488–0902

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT

ENVIRONMENTALLY SENSITIVE AREA(S) EXIST ON THIS PROJECT

Refer To E. C. Special Provisions for Special Considerations.

THIS PROJECT HAS BEEN DESIGNED TO SENSITIVE WATERSHED STANDARDS.

THIS PROJECT CONTAINS EROSION CONTROL PLANS FOR CLEARING AND GRUBBING PHASE OF CONSTRUCTION.

GRAPHIC SCALES

20 10 0 20 40
PLANS

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG–010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 1, 2016 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Plans Prepared By:
M A Engineering Consultants, Inc.
598 East Chatham Street - Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
NOVEMBER 4, 2015

LETTING DATE:
FEBRUARY 26, 2019

PAUL CAMERON, PE
PROJECT ENGINEER
LEVEL III CERTIFICATION
NUMBER 3624

Roadway Standard Drawings

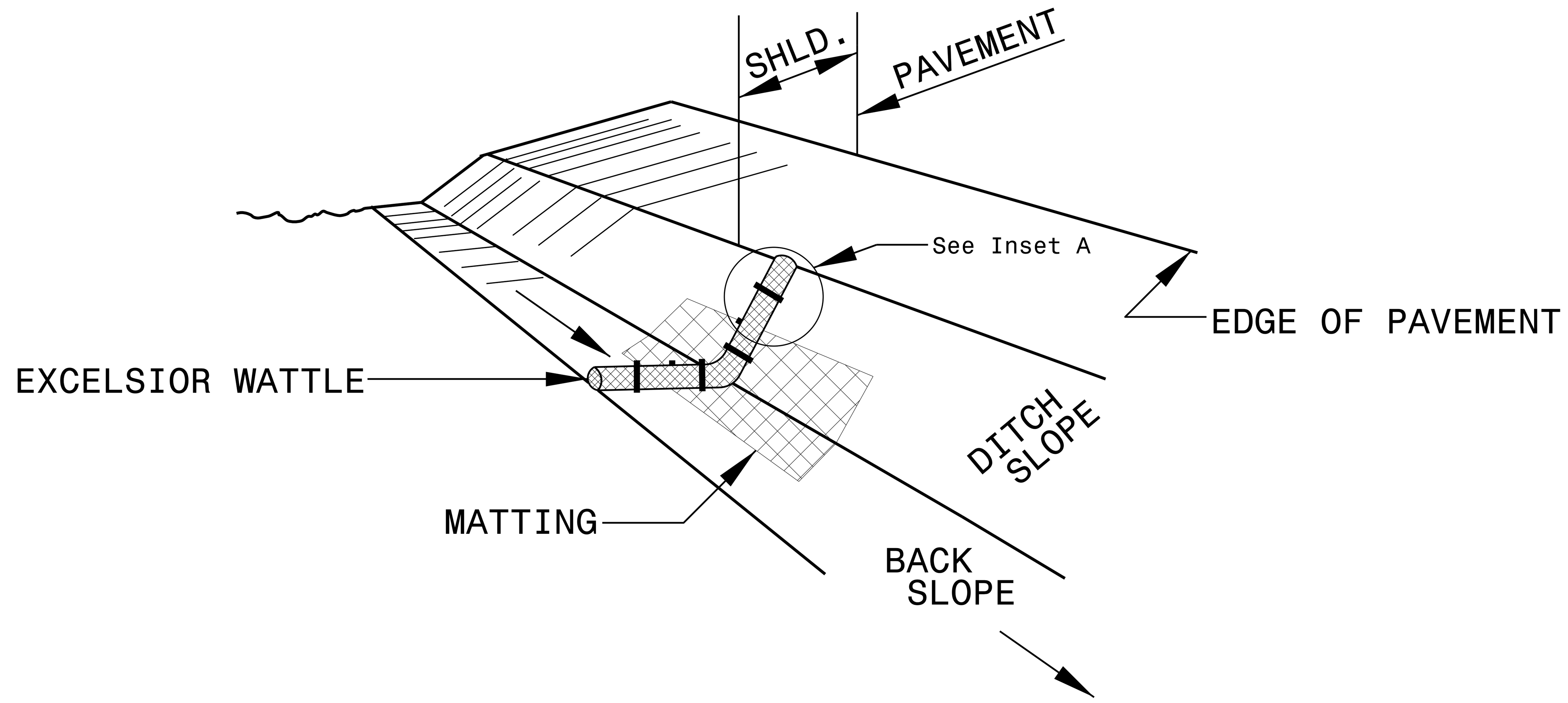
The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2018 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

1/8/2019
R:\Hydraulics\EC\B440215_EC_pshl_TSH.dgn
5:55:59 PM

PROJECT REFERENCE NO.	SHEET NO.
B-6022	EC-2

WATTLE WITH POLYACRYLAMIDE (PAM) DETAIL



ISOMETRIC VIEW

NOTES:

USE MINIMUM 12 IN. DIAMETER EXCELSIOR WATTLE.

USE 2 FT. WOODEN STAKES WITH A 2 IN. BY 2 IN. NOMINAL CROSS SECTION.

ONLY INSTALL WATTLE(S) TO A HEIGHT IN DITCH SO FLOW WILL NOT WASH AROUND WATTLE AND SCOUR DITCH SLOPES AND AS DIRECTED.

INSTALL A MINIMUM OF 2 UPSLOPE STAKES AND 4 DOWNSLOPE STAKES AT AN ANGLE TO WEDGE WATTLE TO BOTTOM OF DITCH.

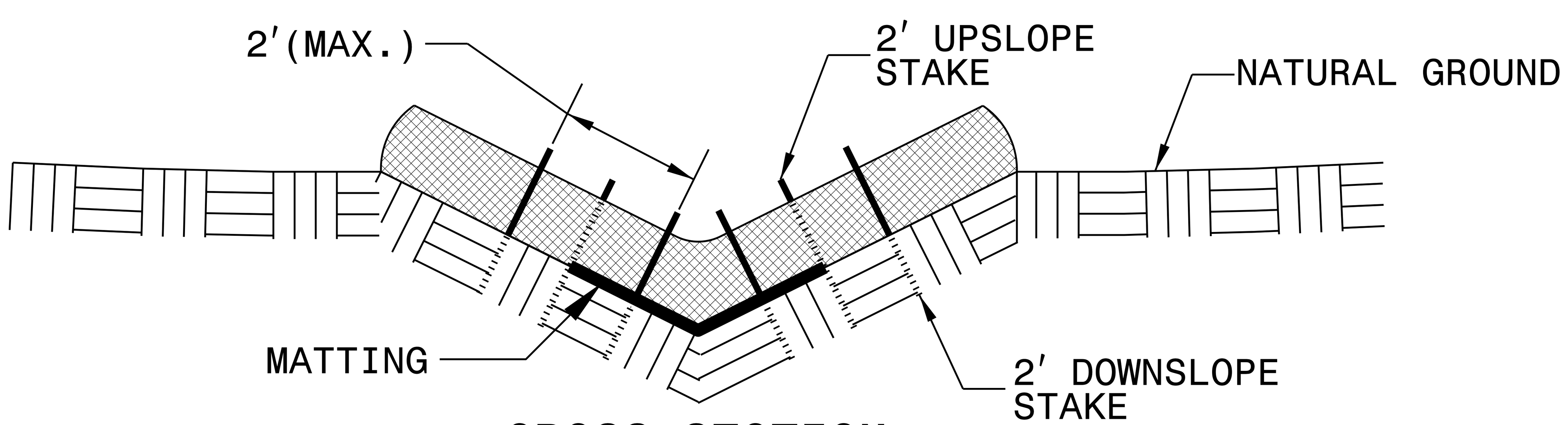
PROVIDE STAPLES MADE OF 0.125 IN. DIAMETER STEEL WIRE FORMED INTO A U SHAPE NOT LESS THAN 12" IN LENGTH.

INSTALL STAPLES APPROXIMATELY EVERY 1 LINEAR FOOT ON BOTH SIDES OF WATTLE AND AT EACH END TO SECURE IT TO THE SOIL.

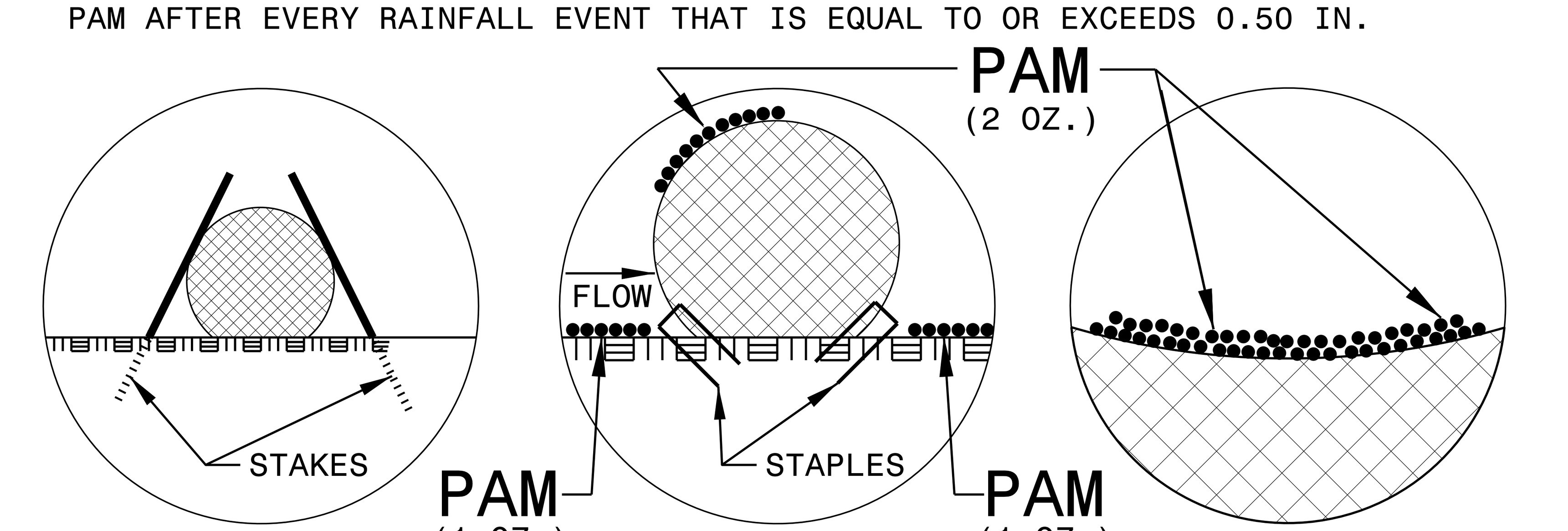
INSTALL MATTING IN ACCORDANCE WITH SECTION 1631 OF THE STANDARD SPECIFICATIONS.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH WATTLE.

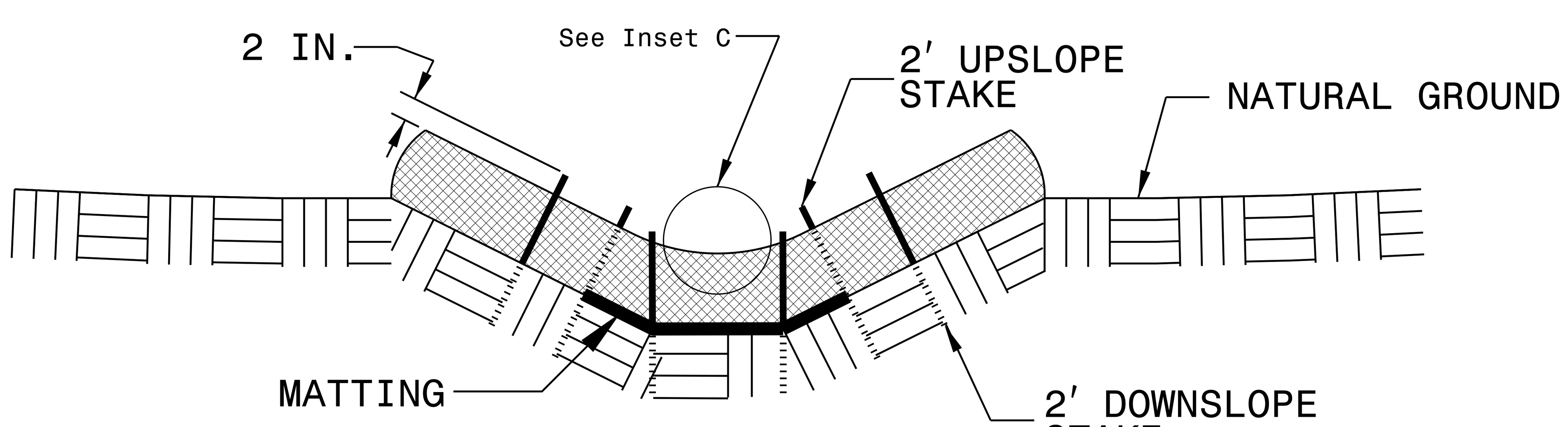
INITIALLY APPLY 2 OUNCES OF ANIONIC OR NEUTRALLY CHARGED PAM OVER WATTLE WHERE WATER WILL FLOW AND 1 OUNCE OF PAM ON MATTING ON EACH SIDE OF WATTLE. REAPPLY PAM AFTER EVERY RAINFALL EVENT THAT IS EQUAL TO OR EXCEEDS 0.50 IN.



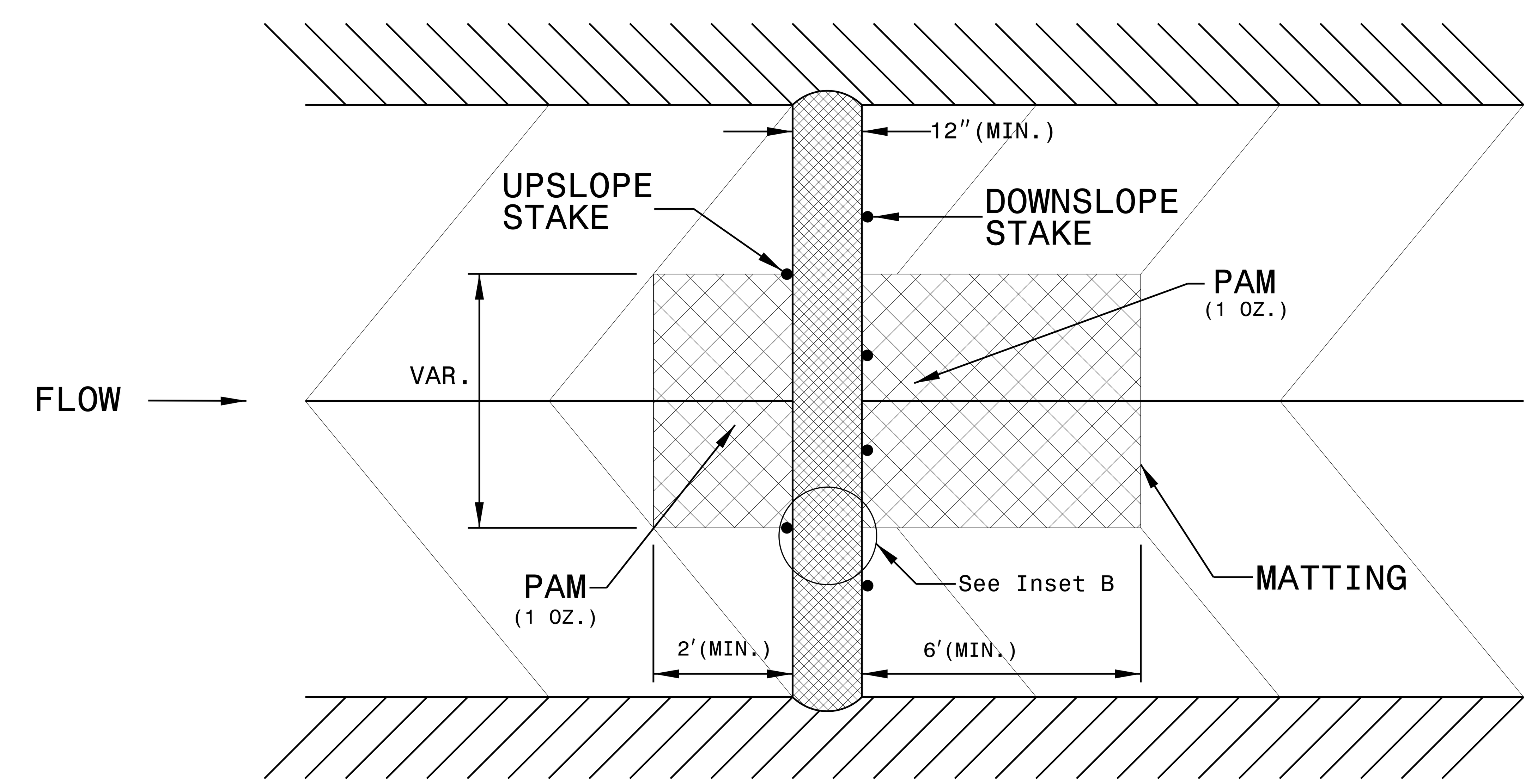
CROSS SECTION
VEE DITCH



INSET A INSET B INSET C



CROSS SECTION
TRAPEZOIDAL DITCH



TOP VIEW

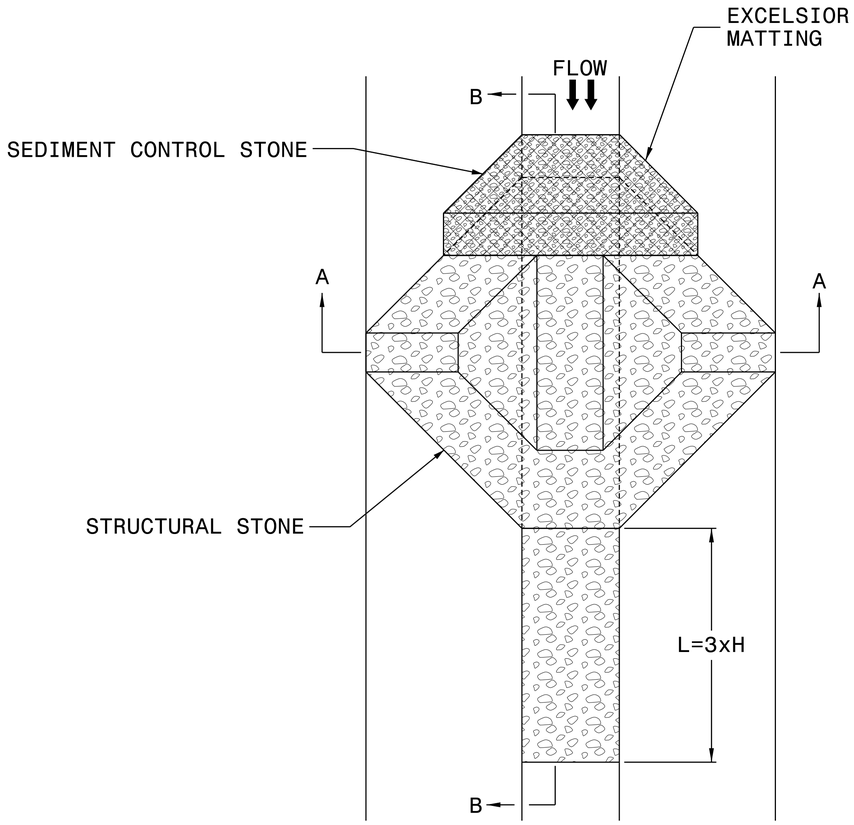
8/17/99

REVISIONS

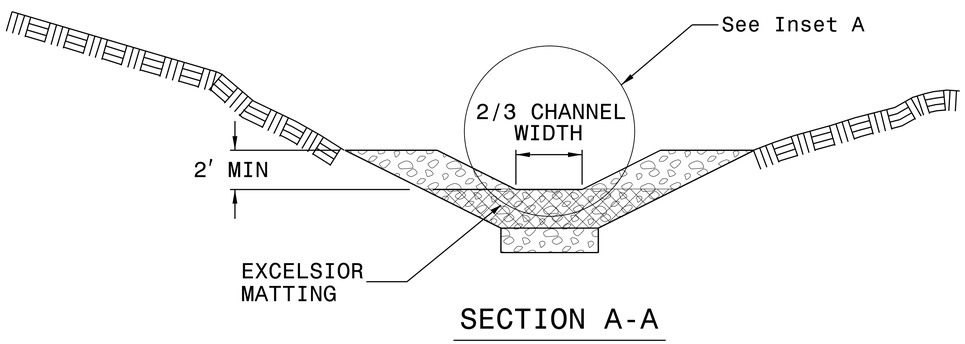
$$$$$$SYSTIME$$$$$
$$$$$$$$$$DGN$$$$$$$$$$$$$$$$$$
$$$$USERNAME$$$$

PROJECT REFERENCE NO.	SHEET NO.
B–6022	EC–2A

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN



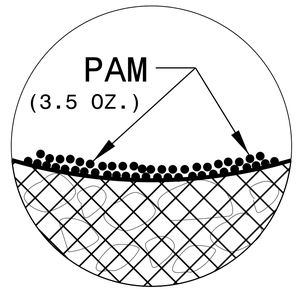
SECTION A-A

NOTES

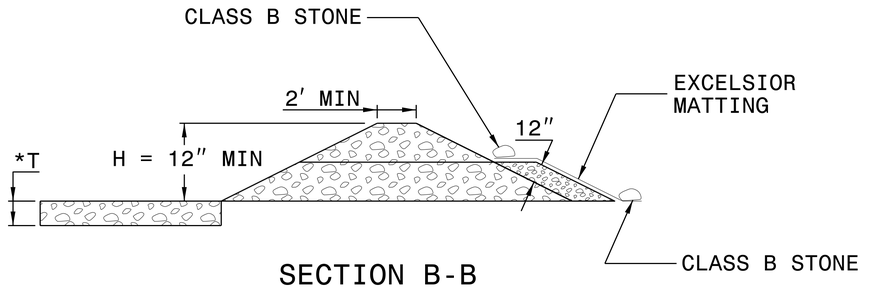
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

INITIALLY APPLY 3.5 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION B-B

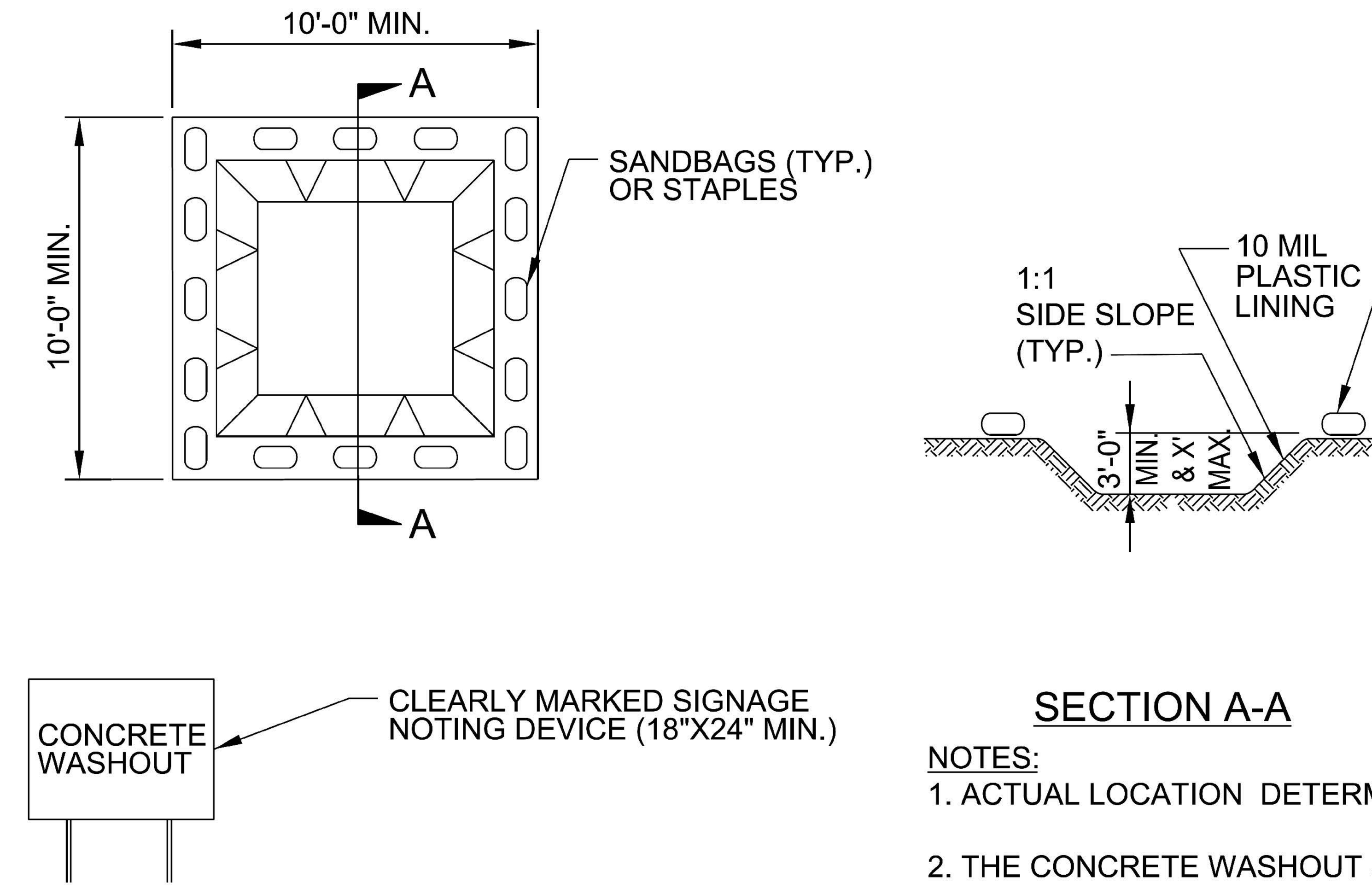
*T = 12" MIN., 18" MAX.

NOT TO SCALE

DocuSign Envelope ID: 5B5C1042-89F4-40DA-93C2-053CCC622E2A

PROJECT REFERENCE NO.	SHEET NO.
B-6022	EC-2B

ONSITE CONCRETE WASHOUT STRUCTURE WITH LINER



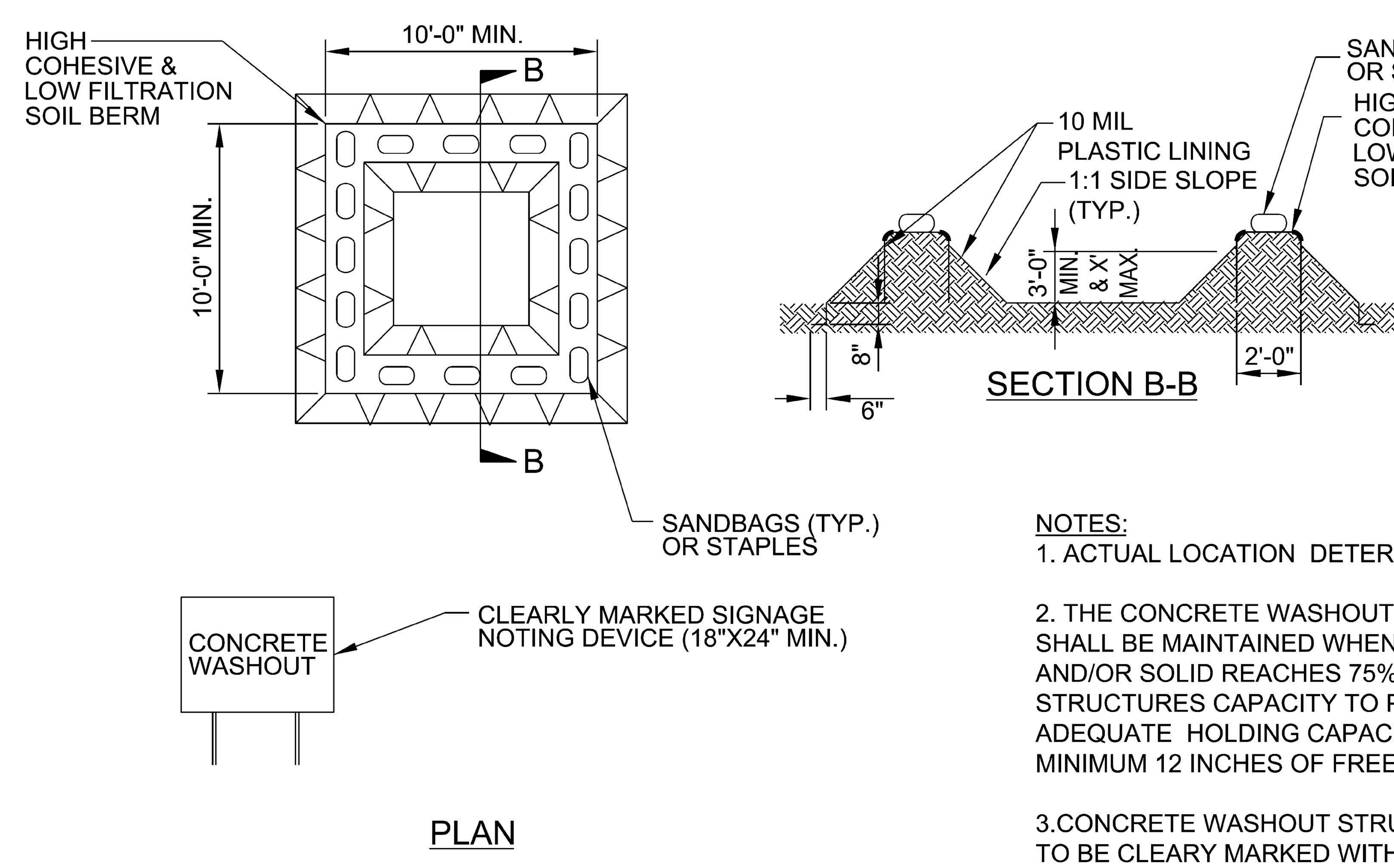
NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

BELOW GRADE WASHOUT STRUCTURE

NOT TO SCALE



NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD

2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.

3.CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

ABOVE GRADE WASHOUT STRUCTURE

NOT TO SCALE

REVISIONS

8/17/99

1/8/2019
R:\Hydraulics\EC\B440215_EC_psh2B.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-6022	EC-3

M A Engineering Consultants, Inc.
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

SOIL STABILIZATION SUMMARY SHEET

EXCELSIOR MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
	MATTING IN GTD AREA				100
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					1000
				TOTAL	1100
				SAY	1100

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

SOIL STABILIZATION TIME FRAMES

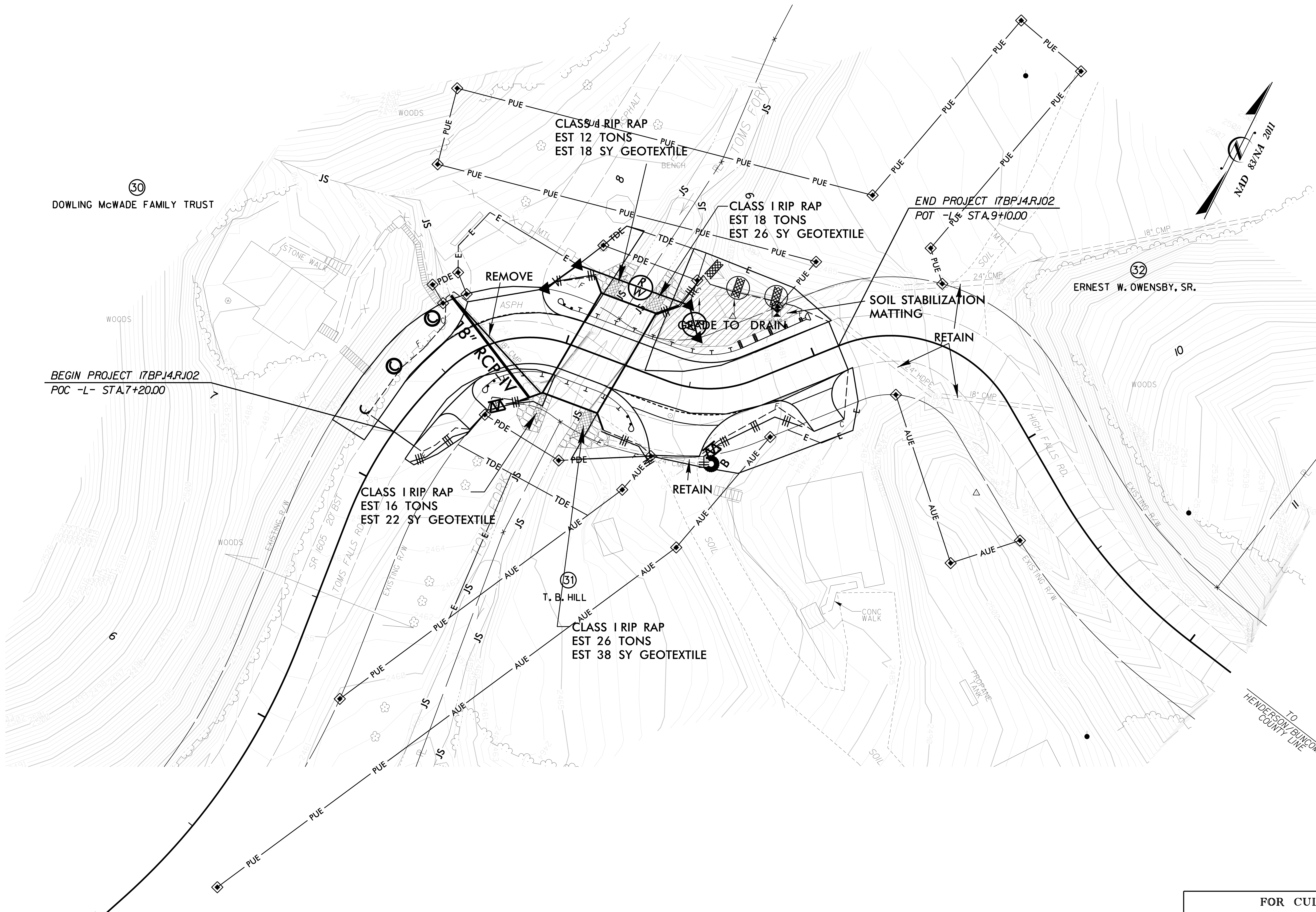
SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
B-6022	EC-4

HENDERSON COUNTY CULVERT #440215

M A Engineering Consultants, Inc.
NC License: F-0160
598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

REVISIONS



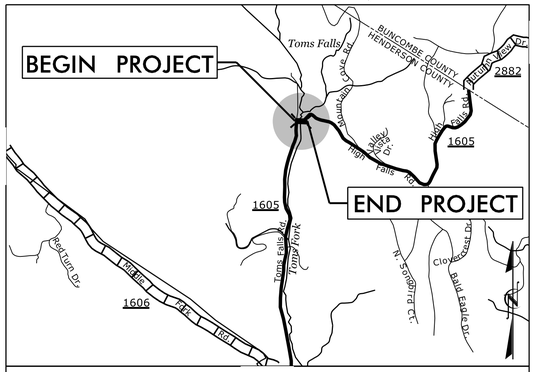
FOR CULVERT
SEE SHEETS C-1 THRU C-4

09/08/09

PROJECT: B–6022

CONTRACT: DN00271

See Sheet 1-A For Index of Sheets
See Sheet 1-B For Conventional Symbols



VICINITY MAP N.T.S.

FINAL PLANS

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

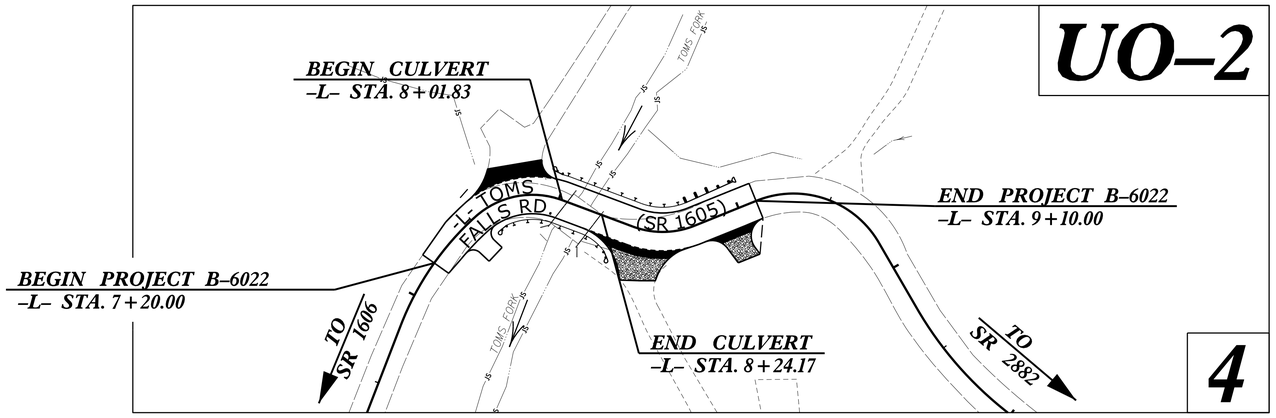
HENDERSON COUNTY

T.I.P. NO.	SHEET NO.
B–6022	UO–1

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS
NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET

LOCATION: *BRIDGE #440215 OVER TOMS FORK ON SR 1605 (TOMS FALLS ROAD)*

TYPE OF WORK: *UTILITY BY OTHERS RELOCATION*



NAD 83/NA 2011

GRAPHIC SCALES

50 25 0 50 100
PLANS

50 25 0 50 100
PROFILE (HORIZONTAL)

10 5 0 10 20
PROFILE (VERTICAL)

INDEX OF SHEETS

SHEET NO.:	DESCRIPTION:
UO–1	TITLE SHEET
UO–02	UBO PLAN SHEET

UTILITY OWNERS WITH CONFLICTS

(A) POWER – DUKE ENERGY
(B) PHONE – AT&T

PREPARED IN THE OFFICE OF:

M A Engineering Consultants, Inc.
598 East Chatham Street - Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
NC License: F-0160

WEBB WHITE — PROJECT UTILITY COORDINATOR

DIVISION OF HIGHWAYS
DIVISION XX
253 WEBSTER ROAD
SYLVA, NC 28779

ADAM DOCKERY — BRIDGE PROGRAM MANAGER
BOB GOLDING — DIVISION UTILITY ENGINEER
BILL GREEN — UTILITIES COORDINATOR

1/8/2019
R:\Utilities\Rdy_Utility\Projects\B440215_UT_UO-01_tsh.dgn
5:28:55 PM

PROJECT REFERENCE NO.	SHEET NO.
B-6022	UO-2

M A Engineering Consultants, Inc.
598 East Chatham Street - Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221
NC License: F-0160

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK SHOWN ON THIS SHEET WILL BE DONE BY OTHERS
NO PAYMENT WILL BE MADE TO THE CONTRACTOR FOR UTILITY WORK SHOWN ON THIS SHEET